LUOTO

Fostering sustainability

Action plan for ecological transition in cultural and creative sectors

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Fostering sustainability – Action plan for ecological transition in cultural and creative sectors

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1 Introduction

Since time immemorial, art in its myriad forms has reflected contemporary society and major transformations. Cultural and creative sectors shape our culture from within; they increase our awareness of the increasingly complex environmental crises, and contribute to making a positive impact on sustainable development in our country. What is most crucial for this process is whether we are able and willing to use sustainable practices and critical contents to drive the sustainability transition in the creative industries.

Creative sectors and related industries can play a significant role in enabling us to tackle the most complex climate and environmental challenges. This important resource is often overlooked in social debate and in decision-making processes involving financial support. We now know for a fact that impactful change cannot take place without education and training across all levels of society and without sufficient financial incentives. The cultural and creative sector, unlike other sectors in Finland, such as construction, trade and industry, transport, logistics, agriculture, and tourism and hospitality, has, until now, lacked a comprehensive nationwide action plan for promoting ecological sustainability.

This action plan looks at the ecological sustainability of the creative industries, taking their economic and social aspects into account. It provides a cross-section of sectoral baselines and proposed pragmatic solutions. Creative fields include architecture, the audiovisual and film industry, performing arts, libraries, design, publishing and media, visual arts, fashion and textiles, museums and living cultural heritage, music, gaming, festivals and the events industry. Together, these sectors employ more than 100,000 people, or 3–5% of the current workforce.

Creative industries could lead by example and introduce practices that reduce environmental impacts. These sectors can promote alternative consumption patterns, foster sustainability, and envisage a less resource- and energy-intensive future. Frontrunners in these sectors have already adopted low-carbon circular economy solutions and chosen environmentally sustainable products. They embrace innovative, even radical approaches to achieve their desired goals. Some measure climate impacts as a matter of course, while others follow climate-wise best practices in their respective fields.

An ecological transition is currently underway in the creative industries, and it needs everyone's unreserved support and recognition in the public, private and third sectors alike. There is no time like the present to start putting the available solutions into practice. Join us. Let's make change happen.

Anu Mänty, the Finnish Innovation Fund Sitra, and Jaana Eskola, Helsinki-Uusimaa Regional Council

2 The LuoTo project and project team

The action plan for ecological transition in the cultural and creative sectors (LuoTo) was put together in a project co-implemented by the Helsinki-Uusimaa Regional Council, Creasus ry (Association for Developing the Circular Economy in the Creative Industry), MyStash, Aalto University and the University of the Arts Helsinki. The project received funding from the Finnish Innovation Fund Sitra, the Ministry of the Environment, the Helsinki-Uusimaa Regional Council and the Ministry of Education and Culture. In 2023, nine workshops were organised for professionals in creative industries as well as separate workshops for carbon footprint calculation specialists, culture specialists from the municipalities of the Helsinki-Uusimaa region, and the financiers of art and culture. These workshops brought together more than 300 professionals in the cultural and creative sectors.

This action plan and the actions proposed in it are based on the results of the **LuoTo** workshops, close cooperation with other sustainability projects in the creative industries, and the preliminary **LuoTo** study commissioned by Aalto University and Sitra in autumn 2022, as well as observations made during the project.

Chapters 3–7 and 9–11 of the action plan cover all cultural and creative sectors and provide an overview of their current situation. They also provide practical instructions and propose actions to promote the sustainability transition. In chapter 8, the current situation of sustainability work in each creative sector is examined in detail, and measures are proposed to accelerate the sustainability transition.

The LuoTo working group included **Pia Tynys** and **Jaana Eskola** from the Helsinki-Uusimaa Regional Council, **Heta-Elena Heiskanen** from the Ministry of the Environment, **Anu Mänty** from Sitra, **Kati Nuora** from Creasus ry, **Panu Sirkiä** and **Jyri Sucksdorff** from MyStash, **Lauri Lähteenmäki** and **Teemu Sorsa** from the University of the Arts Helsinki, and **Riikka Mäkikoskela** from Aalto University.

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and to all the professionals and practitioners in the creative industries who offered valuable comments on the action plan.

The LuoTo project continues in 2024–2025 with funding from the NextGeneration EU recovery instrument for the cultural and creative sectors granted by the Ministry of Education and Culture and financed by the European Union. The follow-up project involves facilitating and forging commitment to extensive network cooperation and developing an ecosystem of industry players, as well as building a mentoring network for sustainability projects and entities in the cultural and creative sectors. In addition, the LuoTo project introduces a new sustainability portal for the tools and information needed in the creative industries and implements customised sustainability training packages for those involved in the creative industries.

The creative industries' sustainability transition is progressing rapidly in other Nordic countries, too. In 2023, the Nordic Council of Ministers published the **Nordic Green Roadmap for Cultural Institutions**, which was put together as part of the **Nordic Council of Ministers' Sustainable Living Programme** (2021–24). The updated version of the Nordic Green Roadmap was published in 2024 with two new chapters on Carbon Credits and Digital Footprint.

Many thanks to everyone involved in the first two years of the project. The work to drive the sustainability transition in the creative industries will continue.

3 Solutions for the sustainability transition

This action plan contains key observations of the sustainability projects in the cultural and creative sectors, identifies challenges faced in sustainability work, and makes recommendations for further action to accelerate the sustainability transition in the creative industries.

The content is based on the results of the LuoTo workshops (2023), and the background information used by Sitra and Aalto University when they prepared a preliminary report for the LuoTo project in 2022. This action plan aims to highlight the role of the creative industries as an accelerator of the sustainability transition across society, and to identify potential linkages between the sustainability solutions adopted in different cultural and creative sectors.

Municipalities play a key role in creating a built environment that enables sustainable living. Municipalities determine the conditions and requirements for ecological sustainability, the way in which local practices will be developed, and the resources for activities required when moving towards a more sustainable future. Actions and decisions taken by municipalities can have a wide-ranging impact on sustainability in the creative industries. These include accessibility and traffic solutions, space solutions, arts and culture education, and funding and support criteria.

One of the central themes identified in the project was the need to develop an educational path to foster ecological sustainability in the creative industries. This path should cover all levels from children and young people to higher education and continuing vocational training. The key objective is to incorporate sustainability into our way of thinking and into our every action. An ecosocial philosophy of education should be embraced across all levels of education and training, encouraging pupils and students to always make more ecological and sustainable choices. Sustainability education and training based on lifelong learning would increase awareness of planetary boundaries and prepare professionals in the creative industries to take action over multiple generations to find solutions to our climate and diversity crisis.

Another key point raised in all workshops was the need to help those engaged in the creative industries to build better sustainability skills. For this, support was needed, either as a service bought from sustainability professionals or in the form of additional resources to allow organisations to develop their own sustainability competence. This need has been addressed in the second stage of the LuoTo project in 2024–2025, by offering sustainability training for creative professionals, networking events to boost skills and competences, and a mentoring system to enhance peer learning.

Cultural and creative sectors as influencers

The creative industries have the power to shape cultural values and behaviours. By creating awareness and a common understanding of the actions needed to drive the ecological sustainability transition, art and culture can serve as a powerful engine to promote the social sustainability transition. Creative industries can conjure up utopias and dystopias of alternative futures and thereby provide us with an insight into the severity of the climate and biodiversity crisis and the urgency and necessity of lifestyle changes.

The creative industries can promote the social sustainability transition in multiple ways:

- Creative industries can induce cultural and behaviour changes by showing us how to live a good life and restrict consumption to meet the Earth's carrying capacity.
- At its best, art can inspire and bring together people from different backgrounds and bridge gaps between different ways of thinking. The cultural sector is characterised by a criss-crossing network where teams are formed dynamically from people with different backgrounds. The ability to work in this setting makes people equipped to engage in cooperation in society more broadly. In fact, measures to ensure the accessibility, continued existence and vitality of art and culture can be regarded as one of the most effective ways of promoting sustainability.
- In the creative industries, people working with sustainability are open to various experiments to build new practices to enhance overall sustainability. As a result, the creative industry is quick to adopt tried and tested sustainable practices. In fact, it is often the creative industry that shows public administration how more sustainable practices can be integrated into everyday activities.

Creative industries

The creative industries cover a wide range of companies and organisations of different sizes engaged in different activities. In the LuoTo project, we use the same categories[1] as the Ministry of Economic Affairs and Employment:

1. **Creative content** (literature, music, film and audiovisual sector, gaming industry)
2. **Creative services** (design, clothing design, architecture)
3. **Creative products and culture** (events, performing arts, visual arts and museums and cultural heritage).

Architecture can make a difference in terms of the functioning of society and the use of natural resources within the limits of the Earth's carrying capacity. Ninety per cent of the world's biodiversity loss is linked to the sourcing of raw materials (UNEP, 2020) and 50% of the raw materials consumed annually are used for construction. The most important decisions affecting a building's environmental impact over its life cycle are made in the planning stage.

In the **textile and fashion industry**, new sustainable innovations promote the sustainability transition. The industry accounts for 4–10% of all global greenhouse emissions. By making it normal to use clothes longer and by making repaired and second-hand clothes more aesthetic and culturally acceptable, the industry can also contribute to the sustainability transition in the music and performing arts sector, with artists and performers serving as role models and providing inspiration for new consumption patterns. The textile and fashion sector has given birth to many circular economy innovations, and the reuse of second-hand clothes is constantly growing.

Libraries and literature promote ecosocial education, increase environmental awareness and ensure that everyone has equal access to critical information. Furthermore, libraries encourage people to experiment with the sharing economy, and provide facilities for learning and practising repair skills.

Well-known artists **in the music industry** are significant influencers who reach large audiences and can potentially act as role models for sustainable lifestyles for millions of people.

Major sustainability projects in the live music sector spread the word of the sustainability transition taking place in the creative industries, and also provide tools for sustainability work for those engaged in the performing arts and the events industry.

The film and audiovisual sector tells us stories about life. These stories provide an opportunity to portray an ecologically sustainable way of life and the consumption of natural resources within planetary boundaries as something normal and highly acceptable.

The gaming industry reaches a significant part of the world's children and youth, and can address themes related to the environmental crisis and search for solutions through gamification. The gaming industry can

1 Creative economy - Online service of the Ministry of Economic Affairs and Employment (tem.fi)

also raise issues related to the environmental impacts of digitisation and help to resolve them.

In the performing arts sector new, sustainable operating models have been developed to promote the reuse and rental of sets and costumes, which is helpful for other players in the creative industries. The operating models developed by large players to improve energy and recycling solutions can incentivise and encourage smaller players to prepare their own environmental plans.

The events sector looks into ways of reducing the carbon footprint generated by visitor travel and transport. It can also foster cultural change by offering only ecologically sustainable plant-based foods at events, by making sustainability issues an integral part of the events, and by using advanced circular economy and recycling solutions. Energy efficient solutions at concert and event venues can benefit other operators in the creative industries, such as cinemas.

Visual art questions prevailing thought patterns, helps to grasp the depth of the ecological crisis, and can even improve social dialogue by bringing together people from different backgrounds. In the visual arts sector, collaborative projects bringing together science and art can help people gain an overall understanding of the world and the relationships between things.

Museums, cultural centres and the children's culture sector have the power to influence the attitudes of large groups of people and lead the way in sustainability operations by creating new, carbon-neutral practices. They can also actively raise awareness of our environmental and cultural heritage and serve as centres of ecosocial education.

Intangible cultural heritage builds bridges between people and offers solutions for creating a sustainable future. Efforts to enhance our cultural heritage are closely linked to measures to pursue sustainable development goals. Intangible cultural heritage also includes tangible and digital cultural heritage.

Creative industries as a test bed for sustainable practices and policies

The sustainability projects carried out in the creative industries involve formulating more sustainable practices and policies aimed at reducing the sector's carbon footprint, and at finding a balance between the production of art and culture and the Earth's limited resources. Ecological innovations developed in creative sectors can accelerate the sustainability transition in society at large. The sectors lead the way in adopting sustainable practices and policies, and they have the courage to experiment and the agility to quickly adapt to the prevailing circumstances. In fact, creative industries can spur other sectors on, helping them to reach their sustainability goals.

Work to create more sustainable practices and policies is under way in all creative sectors. Sustainability projects and tools are being used and developed, but so far on a small scale. Besides striving to meet

carbon neutrality targets, the creative industries are also keen to observe biodiversity issues and circular economy solutions. Some of the large-scale sustainability projects, such as the **Elma.live** sustainability tool used in the live music sector and the **Green Palette** project in visual arts, have received support from the EU's structural assistance fund. In autumn 2023, the Ministry of Education and Culture granted funding for the LuoTo project's next stage from the NextGeneration EU recovery instrument for cultural and creative sectors.

By investing in the sustainability skills of the entire staff and individual artists and by incorporating sustainability work into the standard practices and policies of organisations and individuals, the creative sector is establishing itself as one of the trendsetters of the future. Those who already have more sustainable practices and policies in place will have priority over others in the future when everyone in the art and culture sector will be required to meet the sustainability criteria to be eligible for grants. Fortunately, instead of competing with each other, players in the creative industries are showing a strong common commitment to foster sustainability. They are prepared to share best practices and sustainability know-how, and through networking significant progress has been made towards achieving common goals. The climate and biodiversity crisis requires quick solutions – being agile and innovative, the creative industries are able to respond.

With regard to the sustainability transition, there are clearly identifiable common horizontal themes in the creative industries that are broadly linked to climate and biodiversity work. These include energy solutions, such as facility heating and electricity, transport, food-related solutions and the circular economy.

Practical solutions to sustainability challenges in the cultural and creative sectors

While there are significant differences in the ways various creative sectors promote ecological sustainability, some common challenges can be identified. Significant emissions arise from energy consumption in properties, travel and transportation, and emissions caused by materials and production methods.[2] In the LuoTo preliminary report,[3] sustainability challenges identified by cultural and creative practitioners included travel associated with international collaborations, emissions from audience travel, and ways of improving energy efficiency when operations take place in properties managed by someone other than the practitioners themselves. They also considered it difficult to fully understand the environmental impact of digital operating models.

In the cultural and creative sectors, discussions about ecological sustainability have focused on climate change and its prevention, while less attention has been paid to other challenges, such as biodiversity loss.[4] In the section

2 Valajärvi, A. (2020) Kestävän kehityksen tavoitteet taiteen ja kulttuurin alojen toiminnassa, Ilmastonmuutoksen hillintä ja hiilineutraalius. Ministry of Education and Culture, p. 13.
3 LuoTo preliminary report: Luovat alat kestävyyttä etsimässä (aalto.fi)
4 Nuora and Tuovinen (2022) Kestävyydestä kasvua luoville aloille. Business Finland. pp. 4–5

below, we aim to bring together solutions to help the creative sectors tackle their common sustainability challenges, including measures that increase biodiversity.

Properties

Properties have multiple purposes in the creative sectors, including offices, rehearsal spaces, performance venues, theatres, studios, museums and gallery spaces. The size of spaces varies from a single room to large performance venues or theatres. The duration and type of use also varies from occasional use to permanent tenancy and even ownership. Due to these differences, the energy measures in place in properties are also very varied. Below is a list of sustainability measures available to improve energy efficiency depending on whether the practitioner is the owner of the property, a tenant or an occasional user.

Practitioner owns the property

(offices, rehearsal spaces, performance venues, theatres, studios, museums, gallery spaces)

Action points regarding energy and the circular economy

- Have you conducted an energy audit? An energy audit helps to establish patterns in energy consumption and ways of improving energy efficiency.
- Create a monitoring system for lighting, water, heating and electricity consumption.
- A monitoring system allows you to set a standard level of consumption and to notice any changes and analyse the reasons.
- Prioritise electricity and heating generated with renewable sources. Explore opportunities for using wind electricity, solar panels and geothermal energy.
- Have you already signed an energy efficiency agreement? Energy efficiency agreements 2017–2025.
- Minimise waste: reuse sets/structures, costumes or costume materials (repair, repurpose), avoid disposable tableware and other disposable items when serving food.
- Learn more about recycling opportunities: Hiilihelppi.fi > Recycle materials
- Provide instructions on how to be more eco-friendly, i.e. how to avoid unnecessary energy consumption and how to recycle waste.
- If you are doing repairs or renovating, remember appropriate energy efficiency measures, use circular economy materials and recycle.
- Find out what the utilisation rate is and look into possibilities of promoting more active use. Find out whether a model where premises are used as offices during the day and as hotel rooms at night would be feasible.

- Are safe and convenient facilities provided for storing bicycles and for social purposes (changing rooms, storage space, showers)?
- Advertise your energy and circular economy actions openly, offer advice and encourage others to take similar action

Action points to promote biodiversity

- Does the property feature a courtyard, yard or balcony for fostering biodiversity?
- Find out if you could turn your yard into a natural oasis and if it would be possible to put birdhouses in nearby trees: BirdLife Finland | Models and measurements.
- Minimise lawn mowing and the use of pesticides.
- Provide more overwintering shelters for insects: Instructions for bug hotels - Ylä-Karjalan yhdistys (sll.fi), and plant wild plants and perennials.
- Build a green roof or wall: Hiilihelppi.fi | Grow a green roof.

Tools:

- Improving energy efficiency in renovation projects concerning buildings of cultural and historical value
- Energy efficiency agreements
- A Property's Energy Use
- Energy saving and ESCO services
- Environmental criteria for lighting
- Repair projects and energy efficiency - Motiva
- Waste sorting requirements for companies - YouTube
- BirdLife Finland | Models and dimensions
- Hiilihelppi.fi | Create a biodiverse garden

Permanent tenant

(offices, rehearsal spaces, performance venues, theatres, studios, museums, gallery spaces)

- Ask the landlord whether an energy survey has been carried out, consumption is being monitored, and an energy efficiency agreement has been signed.
- Discuss the present situation with the landlord using the list above.
- Encourage the landlord to switch to renewable electricity and heat.
- Save energy and recycle waste and instruct other users to do the same.

Initiate actions that boost biodiversity

- Does the property feature a courtyard, yard or balcony for fostering biodiversity? Talk to the landlord and find out whether the yard could be turned into a natural oasis. Put birdhouses in nearby trees: BirdLife Suomi | Models and measurements; provide more overwintering shelters for insects: Instructions for bug hotels - Ylä-Karjalan yhdistys (sll.fi), and plant

wild plants and perennials. Volunteer to join birdhouse building projects, volunteer to install and maintain raised garden beds or to build bug hotels.
- Suggest putting up a green roof or wall: Hiilihelppi.fi | Green roofs
- Propose cooperation with a local nature conservation group to create meadows, remove alien species, pick litter, restore water bodies or other local activities

Short-term tenant in changing premises

- Ask your landlord whether actions singled out in the list of measures to be taken by property owners have been implemented. Encourage them to take action.
- Ask for instructions on how to foster sustainability during your tenancy.

Initiate actions that boost biodiversity

- Find out if you could combine biodiversity advocacy with public work, or make a donation to stop biodiversity loss

Travel and transport

Travel and transport of audiences, staff, crew, performers and suppliers account for a significant part of the sector's carbon dioxide emissions. Below is a list of measures to reduce the emissions from travel and transport and to encourage the transition to lower carbon travel alternatives.

The activities I organise regularly bring together the same people

- Does your activity include flying? Can you encourage travel by land instead? Instead of flying somewhere in person, can you hold an online meeting? Can you set quantifiable targets to reduce flying? Instead of several people, perhaps only one person needs to fly?
- Can you advocate for your group to start a sharing system for bikes, a cargo bike, an electric bike or an electric car?
- Encourage people to create a habit of cycling to work or to a recreational activity: talk to the groups to identify safe routes and review benefits to personal and environmental health, offer training on winter cycling, and organise a bike repair and service event.

The activities I organise involve one-off travel

- Communicate clearly how to get to your event by public transport or bike, and where to find the nearest electric vehicle charging stations and bike parking areas.
- Contact your local transport authority to find out if an inexpensive local transport ticket can be included in your event ticket.
- Contact a local cyclist organisation to discuss the possibility of organising a mass start to your event

My activities involve significant travel alone or with a limited group of people

- Can you use public transport, cycle or walk?
- Does your activity include flying? Set a quantifiable target for reducing the carbon footprint of flying, and encourage travel by land by offering financial support and the opportunity to use travel time for work. Offer advice and guidance on how to plan slow travel routes and share best practices and experiences.
- Can you reduce the need to travel by organising activities centrally in the same location or in nearby locations?
- Spread the message of climate-friendly travel, act as a role model and drive cultural change by implementing your own organisation's sustainable practices and policies.

Collaborate to create sustainable solutions

- Increase cooperation with municipalities, facility providers and public transport providers to ensure smooth and seamless public transport infrastructure and services that allows your audience to arrive on foot, by bike or by public transport.
- Look into financial support available to your sector for switching to low-emission vehicles (electricity and renewable fuels) and to travel by land instead of flying.

Food services

Food production accounts for over a quarter of global greenhouse gas emissions and is one of the biggest contributors to deforestation and biodiversity loss. Switching to plant-based food is an effective way of protecting the climate and biodiversity. Everyone can do that, and it requires no additional resources. It also provides an opportunity to raise awareness of new, local plant-based innovations and to rediscover traditional recipes.

Do your activities involve food services?

- Serve plant-based food at your events. Create a policy for plant-based eating for your organisation. Set an example for others.
- Check out some inspiring eco-friendly food recipes: Recipes - Climate Friendly VeggieFood (ilmastoruoka.fi).
- Prevent food waste and sell leftover food: Guide to reducing food waste – the Finnish Hospitality Association MaRa.
- If you perform at events but don't organise them yourself, ask the organisers to ensure the availability of plant-based food and prevent food waste, and offer advice and encouragement by sharing good examples.
- You can use this challenge as an example: Challenge your school or workplace canteen! - Climate Friendly Veggie Food (ilmastoruoka.fi).
- Spread the message and champion cultural change: plant-based food is a more ecological and ethical choice for the future (vegaanihaaste.fi).
- Serve food from reusable or edible serving dishes. Make use of washing trolleys available for events and charge a deposit for dishes.

From disposables to the circular economy

Do you plan material-intensive activities?

- Think of ways to minimise the use of materials.
- Can you use recycled materials?
- Avoid disposables and opt for durable materials that can be reused and repaired

Do you use goods in your activities?

- If you sell goods such as merchandise or museum shop items, consider their necessity, choice of materials, service life and repairability.
- If your organisation stores costumes or props or has vacant premises, think of ways to share materials, or borrow or rent them to/from others.

Increase cooperation and sharing

- Build lasting practices and digital platforms that promote cross-sectoral sharing of goods and premises and boost the reuse and recycling of props, sets and costumes.

Does your core activity involve education and training and/or communication?

- Build networks with advocates for green transition in society and help others in your sector do the same.
- Communicate actively about your sustainability work and carbon footprint.
- Share knowledge, skills and good sustainable practices across industry boundaries.
- Join forces with other industry players to create a model of ecologically sustainable practices which can be duplicated, and which would benefit other, similar sized players in your sector.
- Recruit an environmental coordinator and share the resource with others.
- Build and coordinate cooperation to deploy carbon-wise practices.
- Organise training on sustainability themes for other industry players.
- Organise sector events with information and opportunities for networking and discussion.

4 What can municipalities and regions do to promote sustainability in creative sectors?

Alongside the cultural and creative sector, public sector entities, especially municipalities and regions, play a key role in putting sustainability actions into practice. The purpose of this action plan is to accelerate the ecological sustainability transition in the creative industries, including through municipal action, and to provide public administration with tools for forging more tangible solutions that support sustainable cultural activities.

The role of municipalities

As specified in section 1 of the Local Government Act, municipalities play a key role in promoting the balanced and sustainable development of society. Decisions and actions taken by municipalities contribute significantly to our living environments. They create conditions for easy and sustainable living and thereby affect the daily lives of residents. In the longer term, the way communities are designed, built, and connected to transport systems affect their emissions, biodiversity and access to natural areas nearby. With land use decisions, municipalities determine how land, natural resources and natural areas are used, and by enforcing a building code and plot transfer conditions they can promote sustainability in new construction. Municipal water and waste management services ensure that the principles of the circular economy are upheld. In short, municipalities have a big responsibility for our living environment and its development.

The cultural and educational policy programme of the Association of Finnish Local and Regional Authorities highlights climate change as a phenomenon that has a profound impact on municipal cultural services. Cultural and educational services offer people information and options for making sustainable choices in life. Every resident can make sustainable choices in their daily lives and thereby help to fight climate change locally and globally. The Association of Finnish Local and Regional Authorities helps municipalities find locally optimised solutions for organising and providing cultural and educational services sustainably.[1]

The role of municipalities as providers of educational and cultural services is prescribed by law. Municipalities play a major role in providing avenues for fostering environmental sustainability and quality of life. These factors shape the way we perceive the natural environment around us and how we feel about it. Themes and issues raised by education, youth and cultural services provide motivation and inspire local residents to take action. A pleasant living environment that offers a wide range of opportunities for training and education as well as leisure activities creates a foundation for lasting well-being and happiness.

Children learn to embrace sustainability and respect the natural environment in early childhood education and at school. Later in life, society supports life-long learning. Municipalities provide platforms and are largely responsible for building and developing operating environments. They also outline policies and conditions for ecologically sustainable operations for local players, point the direction for local practices and policies, provide resources and set the pace for local activities.

1 Sivistyksen suunta 2030 (Cultural and educational policy programme 2030) (kuntaliitto.fi)

4 What can municipalities and regions do to promote sustainability in the creative sectors?

The Act on Cultural Activities provides a guideline for cultural work in municipalities

Municipalities' activities are governed by the Act on Cultural Activities in Local Government (Finlex 166/2019), the Public Libraries Act (Finlex 1492/2016) and the Climate Act (Finlex 423/2022) with national climate goals. According to the Act on Cultural Activities in Local Government, local authorities are required to organise cultural activities within the scope of their resources and local circumstances. To fulfil their duty, local authorities shall:

1. Promote equal access to and broad use of cultural and art services;
2. create conditions for professional artistic work and activities;
3. promote active involvement in the arts and culture and related civic activities;
4. offer opportunities for goal-oriented artistic and cultural education covering different forms and fields of culture and art;
5. promote the preservation and use of cultural heritage, and activities that foster and develop local identities;
6. promote the arts and culture as part of residents' health and wellbeing, inclusion and community engagement, and local and regional vitality; and
7. promote cultural interaction and international activities, and carry out other artistic and cultural activities.

One of the key reasons for pursuing the goals set forth in the Act on Cultural Activities is sustainable development, which means taking social, economic and ecological sustainability extensively into account. As a rule, all municipal activities strongly reflect social and economic considerations, whereas sustainable development has not yet similarly taken root in the cultural sector's activities.

To fully accommodate ecological demands, sustainable development in its broadest sense must be upheld in all planning and activities, paying attention to climate change, the circular economy and biodiversity. The law requires that the Ministry of Education and Culture together with other authorities provide municipalities with opportunities for doing so. Similarly, the law enables cooperation between various local government branches and with other municipalities.

Measures to promote ecological sustainability in the cultural activities of municipalities

The guidelines set out in legislation for the cultural activities of municipalities provide the starting point for actions taken by municipalities, together with their climate work objectives. The following key measures to adopt more sustainable practices have been identified:

1. Pay more attention to the availability and accessibility of culture and art as well as sustainability of premises

- Minimise transport emissions by making art and culture available and accessible online, offer carpooling or information about public transport connections, encourage walking and cycling, and ensure proper parking for bicycles. Incorporate art and events into school days and public events and organise carpools for cultural excursions.
- Ensure the sustainable use of municipal facilities for cultural activities in cooperation with facility and property services by choosing ecological heating methods, optimising indoor temperatures and increasing utilisation rates (evening and weekend use).
- **Responsible sectors**: cultural services, facility and property services, transport specialists, communication.
- **Indicators**: methods of transport used, energy efficiency and utilisation rate, proportion of events that promote sustainability of all municipal events.

2. Create conditions for professional artistic work and activities

- Provide information about the environmental effects of the materials used (during procurement and work) and about opportunities for recycling, sharing and repairing materials, and championing sustainable choices.
- Promote the accessibility of work facilities by means of public transport, walking or cycling.
- Set and adhere to sustainability criteria when selecting cultural projects or activities to be supported.
- Communicate sector-specific measures identified in the LuoTo project to the creative sector players in the municipality.
- **Responsible sectors**: cultural services, facility and property services, transport specialists, communication.
- **Indicators**: energy efficiency in facilities, number of sustainability-promoting criteria to qualify for public subsidies.

3. Raise awareness of sustainability when promoting active involvement in the arts and culture and related civic activities

- Provide curated sustainability education for decision-makers, industry professionals and enthusiasts, as well as for local media and other players with an impact on creative industries.
- Provide more opportunities for local residents to actively participate and to initiate action to promote ecological sustainability.
- Take sustainability aspects into account by creating guidelines for the themes and materials used in recreational activities. These guidelines contain information about the sustainability of the materials and encourage sustainable choices.
- Take ecological sustainability into account when planning youth recreational activities, prioritising access on foot, by bicycle or by public transport.
- Take steps to encourage people of all ages to enjoy the outdoors, engage in geocaching or exploring archaeological sites.
- Ensure the long service life and accessibility of the facilities used.
- Responsible sectors: cultural and recreational services, education services, facility and property services, transport specialists, communication.
- Indicators: methods of transport used, energy efficiency and utilisation rate.

4. Link sustainability aspects to artistic and cultural education

- Collaborate with education services to include ecological sustainability in cultural education plan and share responsibility for implementation.
- Take sustainability aspects into account in design and content production.
- Provide information about how different materials impact the climate and nature, and encourage sustainable choices in line with the circular economy.
- Use art education as a channel to help children and young people to process their environmental emotions. Enable young people to become actively involved in solving environmental challenges.
- Update practices and policies in art and culture education to be more ecological.
- Introduce cross-sectoral collaboration models and combine different themes, such as art and transport. Examples include Lahti Symphony Orchestra's cycling event, or linking art to public transport or stops (City of Lahti, Iittala rail halt).
- **Responsible sectors**: cultural and education services.
- **Indicators**: Were the programmes included in the cultural education plan designed and implemented in a sustainable fashion?

4 What can municipalities and regions do to promote sustainability in the creative sectors?

5. Make sustainability a part of fostering cultural heritage

- The Government Resolution for a Cultural Heritage Strategy 2023-2030[2] identifies the themes of sustainable development across all levels of society. These themes are included in the strategic goals.
- Promote a sustainable lifestyle in cooperation with cultural heritage practitioners by putting research data into practice and by passing on cultural heritage knowledge and skills (e.g. arts and crafts, food culture).
- Rely on sustainable methods and materials in new builds, and on the circular economy in renovation and restoration. Find ways to increase facility utilisation rates. Explore local solutions to extend the service life of buildings with the help of both town planning and renovation funding. If necessary, town planning regulations may be supplemented.
- Make sure that more sustainable and structurally optimal energy solutions are used in cultural heritage sites.
- Use sustainable methods to care for natural heritage sites and enhance the proper care of traditional biotopes and other cultural landscapes. The ability of cultural and natural heritage sites to increase our well-being should be highlighted.
- Strengthen the protection of archaeological cultural heritage by implementing more sustainable management and by improving climate resistance of the sites, and ensure the preservation of archaeological cultural heritage for future generations by recording and documenting.
- **Responsible sectors**: cultural services, facility and property services, regional museums (specialist tasks related to cultural environments, including advisory services).
- **Indicators**: energy efficiency in facilities

6. Support ecological sustainability when promoting the arts and culture as part of residents' health and wellbeing, inclusion and community engagement, and local and regional vitality

- Identify and provide information about lifestyles and activities that increase ecological sustainability and wellbeing in communities and in residents' daily lives. These include introducing environmental art into the community structure and encouraging outdoor activities in the wild.
- Municipalities should consider allocating land to creative industry players with the objective of promoting biodiversity. This would allow them to create diverse habitat types or wildflower meadows.
- **Responsible sectors**: cultural services, environmental services, business services.
- **Indicators**: attractiveness of the municipality or province, increased biodiversity

2 Government resolution for a cultural heritage strategy 2023-2030

7. Sustainability in cultural interaction and international activities

- Use sustainable options in domestic and international travel. The necessity of travel should be carefully considered; participation online is preferable and travel by land is preferable to flying.
- Determine the nature and frequency of in-person meetings necessary to achieve the goals set for partnerships.
- Consider sustainability aspects when awarding mobility grants. Sustainability criteria should be set for awarding mobility grants for project activities, taking into account both domestic and international mobility grants.
- Sustainable development goals should also be taken into account in content planning and actively communicated to international partners.
- **Responsible sectors**: cultural services, communication.
- **Indicators**: emissions reductions.

8. Use culture as a means to support resource-wise values that embrace climate and nature, verbalise these values by using story-telling as a tool, all the while being mindful of the freedom of art

- Raise awareness of the sustainability understanding and competence of the local authority's cultural practitioners and local artists, and encourage everyone to adopt a holistic approach to sustainability when planning ways of making art.
- Include sustainability in the eligibility criteria for funding and financial support.
- Emphasise the importance of a positive handprint in communication.
- **Responsible sectors**: cultural services, environmental services, communication.
- **Indicators**: acknowledgements, allocation of funding.

9. Promote sustainability in cultural services and event production, offer sustainable products and services

- Prepare instructions and set sustainability criteria for event planning and content creation.[3]
- Pay attention to sustainability aspects in all plans regarding transport, energy, catering, recycling and venue structures.
- Minimise emissions from catering by choosing more plant-based foods and by managing food waste. Serve food from reusable dishes and pay attention to recycling.
- Ensure easy accessibility of events, prioritising sustainable modes of transport to minimise emissions. Organise events at venues with good public transport connections or that frequently host events. Information about public transport opportunities should be provided actively. At major events, a public transport ticket should be included in the admission price.

3 Hiiliviisaan tapahtuman käsikirja ('How to organise a zero carbon event' handbook) (kestavyysloikka.ymparisto.fi)

4 What can municipalities and regions do to promote sustainability in the creative sectors?

- Offer an opportunity for participation online.
- Ensure that event facilities are ecological and energy-efficient.
- Be open about the environmental impacts and restoration after the event.
- Calculate and report emissions from the events.
- **Responsible sectors**: Cultural and leisure services, environmental services, communication.
- **Indicators**: The carbon footprint of the event (catering, transport, facilities, materials and energy, and impact on nature).

10. Earmark resources for sustainability work carried out by cultural services and invest in staff sustainability competence

- Organise sustainability training for those working in cultural services and appoint a person responsible for sustainability work that has specific goals and encourages cooperation.
- Enhance cooperation between municipalities as well as cooperation with the regional council and cultural practitioners. In the framework of this cooperation, the parties could agree on coordination measures to promote sustainability work through broader collaboration.
- Expand the use of libraries as platforms for sharing household items, as permitted by local resources.
- Communicate goals, milestones and achievements, including small ones.
- Budget transitional funding for training and competence development.
- Refer to the practices specified in the SDG analysis workbook published by the Association of Finnish Local and Regional Authorities when planning projects, programmes and cultural activities.
- Responsible sectors: Cultural and education services, administration

11. Poll the views of creative industry players on the sustainability of municipal cultural services

- Prepare a report in cooperation with the regional council to analyse the views of creative industry players on the role of cultural services, library services and municipal facility services as enablers of ecological sustainability. The goal is to gain a deeper understanding of the ways in which municipalities can support the sustainability transition of the creative industries and the development needs identified by cultural practitioners.
- **Responsible entity**: Regional council

The role of regions

The climate and cultural work carried out by regional councils is based on the Act on Regional Development (Finlex 756/2021). Regional councils promote sustainability on a wide front. They rely on the regional programme as the key document that lays out the region's envisaged long-term development. In addition, most councils have prepared a climate road map for the region. Alongside these, regional land use planning and transport system work based on the Land Use and Building Act are also at the core of sustainability work. These are indeed the most important tools for sustainable regional development.

Regional councils are joint municipal authorities, which is why they focus strongly on supporting the work carried out in municipalities and enhancing cooperation in areas such as the themes set out in the regional programme. With their extensive and established multisectoral networks, councils are able to engage other entities in sustainability work. Councils also work to promote inter-municipal cooperation and share best practices between municipalities. Other ways of supporting sustainability work include the allocation of regional development or programme funding.

Goals set out in the Act on Regional Development include promoting culture as part of regional strategic work, strengthening regional identity, and encouraging residents' involvement in regional development. Based on the measures identified in the LuoTo programme, this is one way of fostering sustainability.

Measures to be taken jointly by regional councils, municipalities and other players in the cultural sector:

1. Set promoting sustainability in creative industries as a goal in regional development documents, such as the regional programme, carbon neutrality roadmap or cultural strategy.
2. Identify shared goals and rules with municipalities, the cultural sector and other creative industry players to promote sustainability based on the LuoTo action programme, and provide training, materials and networks to support the sustainability work of municipal cultural services.
3. Make sustainability an eligibility criteria for funding.
4. Systematically develop platforms and operating models for regional players, and offer examples to support voluntary green transition in the cultural sector actors, provide information and assistance in implementation.

A policy statement of the cultural specialists of the Helsinki-Uusimaa municipalities ULKAS for the Helsinki-Uusimaa Regional Climate Roadmap 2030:

"We will use culture as a means to espouse climate-friendly values and take steps to promote sustainable cultural activities and event production. We will identify climate change and societal transformation needs in cultural production, verbalise them and use storytelling as a tool. We will foster sustainability in products, services, cultural activities and event production. We will systematically build and develop platforms and operating models to support the voluntary green transition of citizens and cultural sector players. We will work together with the sector to create and improve methods to measure, encourage and monitor actions."

Additional materials

- Cultural Heritage Strategy 2023–2030
- SDG analysis process workbook for municipalities
- Helsinki-Uusimaa Regional Climate Roadmap 2030
- Municipal climate strategies and action programmes

Examples of sustainability work in the creative industries

- Lahti Symphony Orchestra launches a cycling campaign and invites everyone to join in | Päijät-Häme | Etelä-Suomen Sanomat (ess.fi)
- Art will be showcased in public transport in Lahti this year (taike.fi)
- HSL and the Finnish event industry tighten their cooperation – free public transport tickets for concertgoers (HSL.fi)

5 The transformative power of cultural and creative industries

The ecological sustainability transition of society requires new ways of experiencing and living a good life. We need a low-carbon circular economy, a sharing economy, ecologically sustainable products and new consumption habits. We need ecosocial education to raise our environmental awareness, powerful communication about environmental, innovative thinking and, above all, cultural change. To achieve all this, we need creativity. That is why the creative industries should lead the way in the sustainability transition.

The creative fields exert significant influence in society. The gaming industry, for instance, has grown into an industry with an annual turnover of more than three billion euros.[1] In 2022, libraries registered more than 80 million loans.[2] Almost a third of Finns go to the movies at least three times a year,[3] and people spend on average two hours a day[4] listening to music. Finnish architecture and design are known and admired throughout the world.

Most of the time, however, the influence of the creative fields cannot be quantified and compiled into statistics; instead, their influence is more elusive. For instance, architecture plays a huge role in shaping our urban environments, while high-quality design can make our everyday lives easier. Art and culture are part of a well-rounded education, which affects all social thinking. Without artistic narratives and stories our mental image of Finland would be very different.

The transformational power of creative industries is indirect and less obvious, which is why its impact may easily be overlooked. Instead, we tend to focus on practical measures and efforts to reduce the environmental impact of our actions, which is fine and well – and necessary – because otherwise nothing will change. Moreover, to have credibility, you must practise what you preach. Some of the creative sector's potential may remain unused if the power of creativity, culture and art is not understood and put to good use to bolster the ecological sustainability transition.

The interviews and surveys carried out for the LuoTo preliminary report revealed that the transformational power of creative industries is considered their most important vehicle for driving the sustainability transition. The report also suggests that the transformational power and the sector's potential are not discussed enough. Creative industries are perceived to contribute in many ways to a change in attitudes and behaviours required for a sustainability transition. It is also believed that society in general and science in particular could benefit from the creative sector's skills and competence.[5]

Each creative sector exerts influence in its own unique way. Arts such as literature, visual arts and film are the building blocks of cultural capital and civilisation. Popular culture offers role models, while publishing, television and radio, and events are important platforms for communication and cultural activities. Design and applied arts, such as architecture and gaming, use artistic skills in design aimed at creating an excellent user experience. In addition, art, creativity and culture themselves contribute to ecological sustainability.

1 Neogames (2022). The Game Industry of Finland. p. 8.
2 Statistics of Finnish public libraries. Statistical search. Search date 11 September 2023.
3 Jukka Ekholm (2019). Cinemas attract growing audiences, people watch fewer films on TV. Data and trends. Statistics Finland. 5 September 2019.
4 Teosto ry (2022). Music listening in Finland 2022: the amount of focused music listening increased after a long time, new music spreads fastest via short videos on TikTok. 30 September 2022.
5 Lebedeff & Grekov (2022). Creative industries in search of sustainability: a preliminary report on the activities and methods that promote ecological sustainability transition in the creative industries in Finland. Aalto University

Harnessing the power of creative industries to drive social change

More determined action is required to fully tap into the power creative industries have to shape societies. It is worth pointing out that most creative industries have a relatively small carbon footprint and in terms of consumption they prioritise high quality experiences. If we were to favour the eco-efficient products and services of the creative industries over more environmentally damaging consumption – such as visiting a domestic festival instead of flying to a holiday resort abroad – this would create a transition towards more ecological consumption.[6]

We can reasonably argue that culture and creativity per se are beneficial for the sustainability of society. In recent years, it has become increasingly clear that the cultural sector provides ample opportunities for fostering sustainable development.[7] One of the most significant sustainability challenges in industrialised societies is the culture of excess consumption. This is a prevalent lifestyle in many Global North countries, and the wasteful use of materials and energy associated with it is exceeding the limits of the Earth's carrying capacity.[8] While action is being taken to improve sustainability in the creative industries, the cultural sector is offering alternatives to environmentally damaging consumption. This is why it is important to ensure the accessibility of culture. This issue is raised in the expert reports delivered to the Finnish Parliament's Committee for the Future (TuVM 1/2021 vp), which emphasise the potential creative fields might offer for finding new meanings and connections in culture.[9] On the other hand, **the 1.5-degree lifestyles report** commissioned by the Finnish Innovation Fund Sitra shows that replacing the consumption of material products with leisure services will not necessarily result in a substantial reduction in climate emissions.[6] It is therefore essential to take action to reduce the ecological footprint in the creative industries.

6 Lettenmeier, Akenji, Toivio, Koide & Amellina (2019). 1.5-degree lifestyles. Targets and options for reducing lifestyle carbon footprints. Sitra Studies 148. Erweko, Helsinki 2019.
7 Soini & Birkeland (2014). Exploring the scientific discourse on cultural sustainability. Geoforum, 51. 213–223.
8 Magnus Boström (2020). The social life of mass and excess consumption. Environmental Sociology, 6(3): 268–278.
9 Committee report TuVM 1/2021 vp–VNS 3/2020 vp.

Making ecological sustainability more tangible and visible through art

Our ability to track the ongoing environmental change and society's ability to manage the ecological sustainability transition depend essentially on scientific information. However, access to scientific data will not systematically lead to a change in behaviours. For many, environmental problems are distant phenomena, and science communication is considered difficult to understand and digest.[10]

Art, on the other hand, is seen as something that comes closer to the human experience. Empirical evidence supports this claim: for example, the blockbuster movie The Day After Tomorrow (2004), which played on the climate change theme, enhanced viewers' concerns about climate change risks and their own motivation to take action to mitigate it.[11] By using an experimental setup, Nan Li et al. were able to prove that artistically visualised climate data evokes stronger emotions than conventional scientific presentation, and makes information more easy to digest.[12]

At its best, art affects us in many ways: it serves as a tool that helps us understand and interpret both humans and the world around us, and the relationship between these two, which is often the cause of environmental problems. This offers fresh perspectives on new and familiar things. Sanna Lehtinen, aesthetics researcher, claims that by creating a connection between an individual and an abstract phenomenon, art can provide a frame of reference for forming a personal experience of large-scale environmental problems.[13]

The ability to envisage a future is often singled out as a special feature of art. This is needed both to outline an ecologically sustainable future and to instil hope. According to Kaarlo Hildén, Rector of the University of the Arts, practising art and art education help to deal with the cultural transformation that calls for new lines of thinking and new approaches to building a sustainable future. The importance and effect of visions of the future is recognised in the study of sustainability transitions, where the concept of the imaginary is used to explain collectively shared and institutionalised visions of the future.[14]

Art's ability to move and influence could and should be used more in the pursuit of ecological sustainability. At the same time, however, we must recognise that art has intrinsic value and evolves independently. Art is a reflection of the artist and the surrounding culture, their characteristics and the contemporary phenomena. That said, artists should be aware of the relationship between their personal expression and the ecological sustainability crisis. For example, the UN guide **Communicating on Climate Change** emphasises the necessity of not presenting incorrect information, of looking for solutions and encouraging action.[15]

10 Woodley, Barr, Stott, Thomet, Flint, Lovell, O'Malley, Plews, Rapley, Robbins, Pearce & Sandover (2022). Climate Stories: enabling and sustaining arts interventions in climate science communication. Geoscience Communication, 5, 339–354.
11 Anthony Leiserowitz (2004). Day After Tomorrow: Study of Climate Change Risk Perception. Environment Science and Policy for Sustainable Development 46(9), 22–39.
12 Li, Villanueva, Jilk, Rae Van Matre & Brossard (2023). Artistic representations of data can help bridge the US political divide over climate change. Communications Earth & Environment 4.
13 Sanna Lehtinen (2020). Minä väitän: tarvitsemme taidetta ympäristökriisin käsittelemiseen. (*We need art to deal with the environmental crisis*.) Ratkaisuja blog. Minä väitän 21.8.2020. Maj and Tor Nessling Foundation.
14 Silke Beck, Sheila Jasanoff, Andy Stirling & Christine Polzin (2021). The governance of sociotechnical transformations to sustainability. Current Opinion in Environmental Sustainability, 49, pp. 143–152.
15 United Nations. Communicating on Climate Change. Climate Action.

Culture and communication as channels for reaching people remain underused

Publishing, television, radio and events reach a significant number of people and are major sectors in terms of their business value. These sectors have great potential to influence the ecological sustainability transition, but so far this potential has remained relatively untapped.

It would be advisable to use the ability of these sectors to reach people to promote environmental communication. In publishing, it would be worthwhile considering how and to what extent contents reflect ecological sustainability. The audience's receptive mindset should be seen as a valuable resource and an opportunity for setting an example. Because all people seek belonging and social acceptance, simply showing them examples of plant-based eating and litter-free spaces has had a proven positive effect on their environmental behaviour. People are prone to imitate and internalise public behaviours, which leads to pro-environmental behaviour in their private lives, too.[16]

Similarly, attention should be paid to not setting a bad example. For example, the absence of waste sorting bins at events reduces the motivation to sort waste on a much smaller scale at home. Steps should also be taken to ensure that communication resources are not misused for greenwashing. Environmental communication must reflect the big picture and perceptions of ecological sustainability.

The creative industries are often interlinked with many other lines of business. At large events, catering and tourism account for a large part of the financial impacts, while in the media industry business models are firmly linked to advertising. When creative industry players serve as the business platform or as a local attraction, they should demand commitment to environmental goals from the interlinked businesses and thereby prompt these companies to fulfil their environmental responsibilities. Responsibility criteria may have a huge impact, as proven by the case of the Flow Festival: The festival banned red meat and poultry and managed to halve the carbon footprint of the food served.[17]

16 Helferich, Thøgersen & Bergquist (2023). Direct and mediated impacts of social norms on pro-environmental behavior. Global Environmental Change 80.
17 Katariina Uusitupa (2023). Sustainable Flow. Presentation at the LuoTo project's workshop Events. 15.2.2023.

Architecture and design support ecological sustainability efforts

Design and architecture are widely used in industry and construction. Reducing the climate and environmental impacts from these sectors is essential in terms of ecological sustainability transition. In addition, good design and architecture can support sustainable lifestyles and accelerate the sustainability transition. When this happens, we are witnessing the transformative impact of these sectors on the development of society at large.

Architecture is ubiquitous – it is present everywhere, in all spatial dimensions of society and culture, which is why it is indirectly involved in almost all human activities. Building and space planning affects the emissions caused by our lifestyles – housing, traffic, food and consumption.[18] Making ecological sustainability a priority in architectural design should be a key objective. Pro-environmental design solutions that drive the low-carbon transition include a pleasant built environment that encourages pedestrian and cycling traffic, and offers accessible bicycle storage and parking facilities as well as electric vehicle charging points. Zero-energy buildings that produce renewable energy reduce the need for energy production, and mixed-use design solutions aimed at maximising occupancy and utilisation rate reduce the need for additional construction.

Architecture provides ample opportunities for so-called nudging, in other words influencing behaviours, with space planning. A classic example of nudging is product placement in retail stores, but it can also be used to encourage people to make more pro-environmental choices.[19] It should be noted, however, that the power of nudging in influencing behaviours has been exaggerated.[20]

Architecture plays an important part in helping us to adapt to climate change. In Finland, climate change increases extreme weather events, precipitation and strong winds. Architects should start preparing for periods of extreme heat, storms, flooding, slipperiness and changes in soil moisture and groundwater conditions.[21]

The transformative power of design in driving the ecological sustainability transition primarily stems from the ways in which design expertise is used in society. Ornamo Art and Design Finland, the central organisation for design and artistic professionals, **Design is a force of change pursuing sustainable development: the policy recommendations for the design sector 2019–2024** call on Finland to assign more importance to design in life cycle thinking and the circular economy.[22]

Considering that design is perceived as a people- and customer-oriented and a solution-focused field that systematically strives to develop something new,[23] it

18 Sitra (2018). Average carbon footprint of a Finnish person. 15.2.2018.
19 Wee, Choong & Low (2021). Can "Nudging" Play a Role to Promote Pro-Environmental Behaviour?. Environmental Challenges 5.
20 Maier, Bartoš, Stanley & Wagenmakers (2022). No evidence for nudging after adjusting for publication bias. PNAS 119(31).
21 Climate-Proof City – The Planner's Workbook (nd). Adapting to climate change.
22 Ornamo (2019). Design is a transformative power driving change in society and sustainable development - Design industry policy recommendations 2019–2024.
23 Tua Björklund (2022). Accelerate change. Designing for change: New opportunities for development work. Anna Valtonen & Petra Nikkinen (ed.). Art + Design + Architecture 4/2022, 128–137.

would be worthwhile tapping into the field's ability to improve the social acceptability of actions that promote ecological sustainability. Examples include the growing popularity of plant-based foods; a trend that has benefited from foods that replace animal products. In addition to product and service design, concept design is a tool that could be used extensively to plan an organisation's activities. For instance, a road map can be outlined for the implementation of a responsibility strategy, or scenario design can be used to formulate pathways to the future.

Architecture and design involve the same questions as art: aesthetic preferences in relation to ecological sustainability should be carefully considered. We need to think of ways to use architectural and design competence to increase our appreciation of nature and the ecological environment, and to help build stronger relationships with nature in an increasingly urbanised world. Would it be possible to enable residents of big cities to enjoy nature experiences by using landscape architecture solutions that nurture biodiversity, diversify the urban nature and help us adapt to climate change?

How other sectors could benefit from the creative industries' sustainability competence

Creative industries possess the knowledge and skills required to build cultural sustainability that supports ecological sustainability. Their skills in experientialisation, storytelling, gamification, visualisation, planning and open-minded experimentation could and should also be put to active use in other sectors. Competence such as design skills are believed to make companies more daring in their problem-solving.[24] Marketing professionals have long since understood and acknowledged the power that creative fields have in affecting our purchase decisions, consumer behaviour and mental images associated with products. The same power should be utilised when looking for solutions to environmental problems.

Parliament's Committee for the Future has published a paper called **Finland's creative potential – solutions for the era of the climate crisis**,[25] in which creative industry practitioners propose exploring new avenues of cooperation between the private, public and third sectors to increase creative competence.

Cross-sectoral cooperation would generate more competence in creative fields. Funding for cross-sectoral cooperation between art and culture professionals in environmental matters has been provided by organisations such as the Kone Foundation.[26] In education and research, the University of the Arts and Aalto University have

24 Tua Björklund (2022). Accelerate change. Design as a driver of change: New opportunities for development work. Valtonen & Nikkinen (eds.). Art + Design + Architecture 4/2022, 128–137.
25 Petäjäjärvi & Huntus (2018). Finland's creative potential: a solution to the climate crisis era. Publication of the Parliament's Committee for the Future committee 11/2018.
26 Kalle Korhonen (2023). "This cooperation will live long and prosper" – cooperation between science and art in Kone Foundation. Konehuone column. 24.01.2023.
27 Academy of Finland (2023). Connections between science and art promote adaptation to a sustainable future. Strategic research. 25.4.2023.
28 IHME Helsinki (2021). Art, Science, Ecology lectures open up perspectives on links between art and science. 13.04.2021.

cooperated with other members of the scientific community, such as the Helsinki Institute of Sustainability Science (HELSUS) by offering joint research projects[27] and courses.[28]

Recommended actions to enhance the transformative power of creative sectors in the ecological sustainability transition

- Raise awareness of the significance of creative industries for the paradigm shift needed to drive the ecological sustainability transition, and ensure it is reflected in the funding provided to creative and cultural sectors as well as training and planning related to these sectors.
- Education and training in the creative fields should include basic knowledge of the ecological sustainability transition, and the theme should be comprehensively covered in all tuition.
- Funding providers should consider offering strategic funding to heighten the transformative power of creative industries in the ecological sustainability transition.
- Active and research-based discussion about the transformative power of creative fields should be encouraged.
- Improve the inclusion of creative industry professionals and practitioners in society's sustainability transition.
- The expertise of art and culture professionals should be put to effective use to experientialise the ecological sustainability transition and to popularise environmental science, for example through research, communication and business collaborations. Such cooperation would generate more cross-sectoral environmental expertise in the creative fields.
- The creative industries should build up strategic knowledge about the ecological sustainability transition to facilitate constructive participation on many levels and in many institutions (management, administration, private sector, civil society, politics, etc.).
- The potential and practical abilities of the creative industries to accelerate the sustainability transition should be explored through strategic projects and think-tanks.
- Sufficient basic funding must be provided to ensure the vitality of creative fields and the accessibility of art and culture as counterforces to consumption.
- Encourage discussion in the fields of art, design and architecture about the relationship between aesthetic taste and the environmental crisis and ecological sustainability.

6 The role of education in the sustainability transition

In Finland, training and education in the arts and creative fields is provided by a very mixed group of educational institutions and other organisations, each of which has its own important role in enabling and accelerating the sustainability breakthrough in the creative sectors.

Here, training and education is discussed on a general level, but with an emphasis on higher education and to a lesser degree on primary and secondary education. What is interesting from the entire education system's perspective is the roles and responsibilities adopted by different educational institutions to provide the skills and competences needed in the sustainability transition and to instigate the necessary change. The basic education and upper secondary education curricula already include sustainability themes, and at more advanced levels of education students will build on what they have learnt previously and acquire deeper, sector-specific and applied knowledge and understanding of sustainability issues in creative fields. Continuing education on sustainability issues is required to educate the older generations and to provide them with the knowledge and skills they need to incorporate sustainability issues into their own work.

The Finnish education system has traditionally focused on providing a general education, encouraging creative and critical thinking, promoting active citizenship and building research-based knowledge. All of these are needed to implement a sustainability transition. Without all-round knowledge and understanding, it is impossible to tackle complex and intersecting sustainability challenges and to ensure a fair transition. It is important to nurture education and civilisation but also to redefine them in a way that takes the ecosocial perspective into account.

How to support the sustainability transition with education in arts and other creative fields

There are at least two levels on which education in the creative fields can address the challenges involved in the sustainability transition. Firstly, educational institutions can encourage current and future creative field practitioners to adopt and develop policies and practices for the creative sectors that are sustainable for the environment, humans and other species and that embrace the principles of the circular economy. Secondly, educational institutions can inspire and foster a wide range of novel approaches to the way we think, do, experience, see and feel things. Forms of artistic expression such as contemporary dance, film, music and architectural solutions touch people and create connections with society, each in their own way. Furthermore, educational institutions can provide opportunities for those engaged in creative fields to strengthen the transformative power of art that supports the sustainability transition – even in unexpected ways. Environmental education in other fields can benefit

from the methods used and developed in creative fields, such as visual arts and music.

Art and culture can make environmental problems more tangible and increase our sense of responsibility for ethical issues, such as the intrinsic value of nature or global inequality. Similarly, environmental education should encourage creative and solution-oriented thinking. In applied arts, such as design and engineering, creativity can be harnessed to reach very specific goals.

Sustainability transition, however, is not a one-off effort; it is a process involving trial and error. Unlike working life, educational institutions can provide a safe environment for such experimentation without the pressure to produce results. The free experimentation allowed in the creative fields can result in original approaches to working and thinking, which may be useful in the transition to sustainability both within the creative fields and in society at large. In higher education institutions, research inherently involves creating new understanding through experimentation and innovation. Research on sustainability issues can also spill over to other levels of education, thereby strengthening research-based education on sustainability themes in creative fields. It would therefore be advisable to increase and encourage experimentation, diversity and freedom in the current education system, allowing more room for broad-minded approaches, innovations and the pursuit of personal interests.

To make room for creativity and experimentation and to allow students to gain more expertise in multiple disciplines, a more modular degree programme structure is needed that would allow students to freely pick and mix studies around a specific theme. A combination of study modules that focus on methods and content can help to make use of creative competence in contents related to ecological sustainability. In addition, participation in courses provided by several universities within the framework of the Climate University should be made easy for students.

Educational institutions should engage in joint development and interactive work to build shared understanding and competence. People from different backgrounds and in different roles should be able to come together, collaborate and learn from each other. The long-standing tradition in higher education institutions is that teachers pass on research data, expertise and perspectives to students, but it is equally possible for students to educate their teachers in various learning settings. Institutions providing education in creative fields also have the opportunity to supplement the sustainability skills and understanding of the creative industry professionals through continuing education and learning. Educational institutions can bring together representatives from various fields and work together with companies and other organisations to enable and accelerate the sustainability transition.

With power comes responsibility

For the reasons referred to above, education in the creative fields has undenied potential as an enabler and accelerator of the sustainability transition. Given that they offer this significant potential, the educational institutions also have a responsibility to tap into it to promote the sustainability transition and modify their own operations accordingly. This requires motivation and the ability to take swift action to make the necessary changes to ensure the educational institutions are better equipped to tackle the challenges caused by sustainability crises.

From the sustainability transition perspective, the challenge of education provided in creative fields is how to preserve the core strengths while revising operating models and mindsets to make them more sustainable. While traditions, rules and well-established practices are needed during the sustainability transition and in the post-transition world, a critical approach to the current cultural practices and attitudes that have proven unsustainable is also essential. An attempt to strike a balance between the two is reflected in the way higher education institutions try to allocate resources to general education themes and basic research on the one hand and to working life skills, solution-oriented courses and research projects on the other.

During the LuoTo project workshops, it also became clear that graduates from institutions providing tuition in the creative fields are expected to be well equipped to address the needs arising from the ecological sustainability transition in the sustainability work of the creative fields. It is therefore essential that the educational institutions have sufficient foresight: the knowledge and skills that graduates entering working life bring to workplaces should cater to the needs of the ecological sustainability transition in the next few decades. Sufficient foresight in degree programmes reduces the need for continuing education later on.

In Finland, the social justification of the education system is based on the idea of the common good. The only way institutions providing education in creative fields can justify their existence in a time of sustainability crises is to show that they are able to serve the common good by producing data, operating models and skills needed for the sustainability transition, and by respecting the planetary boundaries in their own activities.

In autumn 2023, the University of the Arts was in the process of calculating the carbon footprint of the Sibelius Academy's opera productions. Opera productions were selected, because they tend to be the most extensive artistic productions of the University of the Arts. The footprint calculation was primarily organised and conducted by the Sibelius Academy's opera training producer utilising a calculator and other emissions factors used in connection with the sustainable music industry toolkit project KEMUT. The entire team was involved in data collection, and the producer was responsible for data collection and analysis.

Based on the calculations, guidelines for Sibelius Academy's opera productions will be prepared to reduce emissions. The objective is to use the data in other training programmes and productions of the University of the Arts, and possibly elsewhere in the field of performing arts.

The University of the Arts has a broader goal of including environmental actions in the activities of all three Academies, choosing the most suitable and relevant actions for each one.[1]

1 Interview with Teemu Sorsa, Project Manager (environmental sustainability), University of the Arts 22.9.2023

Recommended action

1. More clearly defined roles and responsibilities for different levels of education with respect to fostering sustainability competence in creative fields

- What is the basic sustainability competence level required in vocational and higher education in the creative fields for building further ecological sustainability skills?
- To what extent should the themes and practices used in creative fields be included in sustainability education in primary and secondary education?

2. Ecological sustainability must be given sufficient room in education in the creative fields

- When planning curricula for education in the creative fields, special attention should be paid to ways of linking traditional school education to sustainability education.
- Degrees in arts and other creative sectors must be able to anticipate and cater to the needs associated with the ecological sustainability transition in working life

3. Experimentation, innovation and creativity in general should be encouraged more in higher education to identify new solutions to ecological sustainability challenges

- The linear degree model should be expanded by increasing the modularity of the degree structure and the freedom to pick and mix different modules.
- Education in the creative fields, which is mostly focused on methodology, should also encourage the study of ecological sustainability, such as by making it easier to apply to studies under the flexible study right agreement (JOO) and online sustainability studies.

Sustainability transition in higher education: Case Aalto University

Sustainability competence is relevant to everyone who wants to address the complex and systemic challenges of today. Aalto University takes strategic action to integrate sustainability themes into all programmes in a meaningful way. More information: Welcome to Sustainable Aalto and Sustainability Reports.

Aalto University's key research areas focus on themes such as material reuse, sustainable energy economy and transport, water scarcity and the sharing economy. About 66 per cent of Aalto's courses include sustainability themes. Aalto University believes that cooperation between different scientific fields and social actors is vital to answering the complex sustainability challenges.

Between 2021 and 2024 the Aalto Co-Educator team supported and collaborated with teachers, programme directors and faculty members with the goal of integrating solutions for sustainability into existing courses and programmes.

At Aalto University, sustainability competence covers four areas

1. Sustainability knowledge (general and sectoral sustainability knowledge and skills)
2. System-based thinking (the ability to analyse complex problems, their root causes and contexts)
3. Foresight (the ability to form future visions that forge a more sustainable future)
4. Values (ability to explore, define and reflect sustainability values).

Sustainability transition in higher education: Case UniArts Helsinki

One of the six strategic goals of the University of the Arts is to include art in the solution to the ecological sustainability crisis. UniArts Helsinki plans to incorporate understanding of the themes of ecological sustainability and sustainable practices more extensively in multidisciplinary teaching, research and artistic activity. At the same time, UniArts plans to reduce its use of natural resources and emissions to a sustainable level and achieve carbon neutrality in its largest emission categories by 2030.

UniArts Helsinki's environmental programme covers three main themes, under which 23 measures have been grouped. A specific time frame, responsible entity and goals have been set for each measure.

Measures are divided under three themes:

1. Teaching, research and artistic activity
2. Sustainable daily activities and reduced environmental impact
3. Structures and management

The goals and action points listed in the environmental programme were outlined in 2022 as part of a process in which every UniArts student and employee could participate and have their say regarding the content. UniArts tracks the implementation of its environmental programme annually as part of its operational planning progress and milestones are reported openly and the programme is updated as necessary, but no later than in 2024.

Action points listed in the environmental programme were put into practice while the programme was still being prepared and immediately after its release. In all curricula effective as of autumn 2024, ecological sustainability is a cross-cutting theme in all studies, and it is included in general studies that are compulsory for all students. UniArts Helsinki is currently a participant in the Climate University network, and possibly will be a participant in other networks offering sustainability studies.

Climate University and UniArts Helsinki have implemented the following measures to reduce their environmental impact:

- All campuses have switched fully to renewable energy.
- The average temperature of indoor premises has been reduced by one degree.
- Musiikkitalo's concert halls have been fitted with modern and more energy-efficient LED lighting.

- Travel guidelines have been updated with policies aimed at reducing air travel (e.g. ban on short flights)
- Steps have been taken to improve procurement practices.
- In meetings and events, only vegetarian food and fish listed in WWF's sustainable seafood guide are served.
- Waste management on campuses has been improved.

In the theme area of Structures and management, new processes will be put in place to manage and track the environmental programme and environmental work as part of the university's regular processes. In addition, UniArts has provided coaching to all management teams and supervisors on ecological sustainability in managerial work.

7

Financing in creative industries, financiers and ecological sustainability

According to a study commissioned by the Central Organisation for Finnish Culture and Arts Associations and conducted by the market research company Taloustutkimus, state funding to the arts and culture sector amounted to EUR 1.2 billion in 2019. Funding allocated to the culture sector by the Ministry of Culture and Education totalled EUR 785 million. According to expert estimates, municipalities allocated about EUR 900 million to culture in 2020. Private foundations supported arts and culture with more than EUR 75 million in 2022.[1] The entire cultural sector employs 77,000 people directly and 46,000 indirectly.[2]

The state finances art and culture mainly through the Ministry of Education and Culture and its subordinate agencies, such as the Arts Promotion Centre Finland and the Finnish Heritage Agency. The Ministry of Economic Affairs and Employment is another co-financier through Business Finland and Centres for Economic Development, Transport and the Environment (ELY centres). Municipalities also play an important role in funding culture.

Furthermore, the Finnish Broadcasting Company YLE plays a significant role as a client or partner in the AV and music industry and event production. Support provided by foundations plays a significant role, especially in certain creative fields, such as music, performing arts, visual arts and literature. In 2022, foundations provided funding of nearly EUR 15 million to support museum and cultural heritage work. They also collect art, offer residencies for creative practitioners and run their own art projects.

In Finland, the largest private foundations that support art and culture are the Finnish Cultural Foundation, Kone Foundation and the Swedish Cultural Foundation, all of which have significant power to promote the sustainability transition in the creative industries. Private investment funds such as IPR.VC and the Finnish Impact Film Fund (FIFF) are slowly becoming more involved in financing.

In addition to Finnish financiers, the EU finances culture through cultural programmes and structural funds such as ERDF and ESF, which have been important for cultural funding. Ticket revenue and royalties are also important sources of financing in the creative industries.

The role of financiers in the artistic and creative industry's sustainability work

In the LuoTo project's sustainability workshops, the shared view repeatedly expressed by participants was that financiers and clients of the creative industries play a key role in the industry's green transition. The eligibility criteria for financing and the clients' requirements provide a framework for the sector's practical work. Players in the field expect financiers to set conditions and criteria and propose financing models. To accelerate the industry's sustainability transition, it would be of the utmost importance for creative sector practitioners and financiers to engage in a close dialogue about ecological sustainability and financing.

Not only do financiers have a big responsibility, but they also have the means to advance the green transition. A large number of financiers are striving to go greener by implementing environmental management systems such as the **EcoCompass** or WWF's **Green Office**. Adopting more sustainable practices is a way for financiers to implement ecosocial values in real life. By doing so, they can foster a wider introduction of sustainable practices across the industry and society more generally, such as by promoting slower travel. That said, it should be noted that the biggest ecological impact in terms of scale comes from the financing granted to the creative sector. When used to promote the sustainability transition,

1 Financial support from foundations in figures 2022 - Foundations and funds (saatiotrahastot.fi)
2 Cultural sector development 2010–2020 and the sector's impact on employment and the national economy. (kulttuurijataide.fi)

the multiplier effect can be quite significant. Financing can be used as an ecological incentive in two ways: by adding more sustainability criteria to the eligibility conditions or by allocating funding to projects that promote the ecological sustainability transition.

Artistic work is financed to a great extent by project funding. Efforts should be made to adopt sustainable practices within the projects in the initiation, assessment and financing stages. For this to happen, both applicants and peer reviewers should be provided with information and education on ecological sustainability.

Whenever possible, financiers should support sustainable practices that clearly reduce the carbon footprint, such as travelling by land. The environmental impact measurement and reporting required of grant recipients should also be made simple and straightforward.

Existing financing models should also be openly reviewed and discussed. Do they promote the sustainability transition in the creative industries, are they neutral or can they, in fact, slow down or complicate the transition? Financing models that are challenging from an ecological perspective include regional funds and production incentives in the film industry. This type of financing is in many ways productive: it helps practitioners, companies and artistic works to gain international recognition, it improves regional attraction, and it has become an integral part of the financing of films or serial productions. However, participants of the LuoTo workshops voiced concerns over the fact that these financing models often encourage productions and large production teams to travel, sometimes unnecessarily. Therefore, the criteria for these financing models should be examined critically. The global industry should engage in an open discussion about its practices.

The role of YLE and other clients

When it comes to artistic and cultural content, clients and financiers play a key role in the green transition. Expectations are particularly high for the publicly funded Finnish Broadcasting Company YLE. YLE has a public service duty prescribed by law to produce, create, develop and preserve domestic culture, art and stimulating entertainment, and to support the preservation of Finnish cultural heritage. In terms of its content, YLE is bound by journalistic guidelines and the ethical guidelines for YLE's programming and content.[3]

Making the ecological guidelines part of the programming content would be a significant step towards the green transition. Several European broadcasting companies have already taken steps to embrace ecological sustainability. Some of them have made commitments with respect to both production methods and content themes. In the UK, some of the country's largest media organisations, including the BBC, signed the **Climate Content Pledge** in 2021.[4]

It would be advisable for all other clients, not just YLE, to have an open discussion about the content they order and their ecological sustainability. Generally binding terms for

3 What does YLE's duty to promote culture mean? (yle.fi)
4 Sally Mills. The Climate Content Pledge - One Year On. BBC Studios.
5 Ecological Standards for German Cinema, TV, and Online/VoD Productions. 2023.

ordered content would be needed in Finland as well. In Germany, **Ecological Standards for German Cinema, TV and Online/VOD Productions**[5] targeting the AV sector were published in 2021.

R&D funding for the green transition in the creative sector

The creative industries need additional funding for research, development and innovation to fuel the green transition. Allocating more funding for ecological practices and research would benefit all sectors, not just the creative ones, but in creative fields R&D activities should be systematically supported and brought to the fore. Having an open mind towards the use of new technologies would accelerate innovations in creative fields.

How to acquire funding for sustainability work in the arts and culture sector outside the traditional channels

Carrying out competence surveys to analyse the environmental competence of practitioners in the creative industries would benefit all creative sectors. These surveys would set the foundations on which to build continuing education for the arts and culture fields. This education would be financed from the existing resources allocated to lifelong learning. Continuing education should be comprehensive and preferably lead to a certification. The sustainability transition could be significantly advanced by building better environmental knowledge in all professional groups in the creative fields.

There is a need to create standards, metrics and monitoring systems for sustainability work in all creative sectors. Some already have these in place but they are not widely and consistently used. To promote the green transition, it is essential to establish a comparable sustainability baseline. Creating metrics and standards is not the core competence of creative industry professionals. Therefore, cooperation with sustainability professionals is recommended.

Creative industries should also seek a closer relationship with other financiers and other industries. Creative industries can serve as a test bed for new, sustainable practices and innovations. Audience transport is one of the biggest sources of emissions in all sectors involving large audiences. Culture sector players and public transport providers are encouraged to explore various collaborations. The cities of Turku, Tampere and Lahti have been testing a concept that combines a public transport ticket with a ticket to cultural events, but so far there have been few users. Government support is needed to improve this collaboration.

Recommendations for creative sector financiers

- Accept responsibility for the sustainability transition of the creative industries.
- Offer funding for the implementation of the sustainability transition. Examples include targeted funding for theme-specific applications, or a certain amount of funding allocated to those who introduce new practices.
- Provide training on sustainability issues to the reviewers of funding applications, or invite specialists to assist in the review process.
- Raise awareness of general funding opportunities for the sustainability transition, including EU funding. New sources of financing are needed to support sustainability work in the arts and culture sector to ensure the already scarce basic funding will not be affected.
- Set climate and diversity criteria for those who receive funding, and provide information to applicants and tools to the selected projects for strengthening their climate and diversity expertise.
- Include sustainability criteria in the evaluation criteria early on in the application process. Exclude ecologically unsustainable operational models.
- Set binding sustainability goals for projects at either the application or grant stage. In the reporting stage, pay attention to the implementation of the sustainability criteria.
- In connection with longer production series, encourage the creation of sustainable practices.
- With large and heavily funded projects, consistently demand more in terms of sustainability criteria and ecological practices.
- Provide education and training for funding application reviewers to make sure art and culture specialists are also equipped to review applications against sustainability criteria. Alternatively, ask ecological sustainability specialists to review applications.
- Do not limit financial support to just new content. In creative fields, sustainable production can involve revivals, reuses and remakes.
- Do not limit metrics to efficiency and new productions; art and culture must provide room for taking things more slowly.
- Support the maintenance and life cycle extension of works.
- Support a wide range of ecological sustainability projects, without forgetting new technologies. Digital innovations can be groundbreaking for the sustainability transition.
- In your own communication channels, share information about the sustainability competence acquired through funded productions.
- Encourage networking between the projects you finance and enable collaborations in sustainability issues.
- Actively share information about the projects you have financed that promote the ecological sustainability transition and about the sustainable practices employed.

8 Sector reviews and proposed solutions

8.1 Architecture

Construction accounts for about 50% of the consumption of raw materials, and the majority of the raw materials used are non-renewable. Buildings account for approximately 40% of energy consumption, and the energy consumed by buildings and construction causes more than a third of Finland's greenhouse gas emissions.

The most significant decisions affecting environmental impacts over a building's life cycle are made in the design and planning stage, which means architecture makes a huge difference in terms of the end users' emissions. In addition, interior design architects interface with several other creative fields and professionals involved in space utilisation and elements such as props.

At the beginning of the 2020s, there were approximately 320 architectural companies in Finland and several professionals providing architectural services under a business name. Companies are mostly small: there were no more than twenty architectural offices or multiprofessional design offices that employed more than 50 people. All sectors of architecture have seen strong business growth, and the total value of the Finnish architecture market at the turn of the 2020s was around EUR 250–300 million.[1]

Architecture brings together art and technology, and multiple perspectives must be taken into account in architectural design. Considering that this publication is about the creative industries, this sector review focuses on architectural design and creative work rather than land use and construction in a broader sense.

Creative fields have a historic opportunity to change lifestyles and adapt them to the limits of our planet's carrying capacity. Architects as the designers of our built environment play an important role in terms of society's ability to function. While cities cover less than two per cent of the Earth's surface, they produce more than 70% of global greenhouse gas emissions. It would be wise to envisage what kind of architecture we might need to prepare for environmental changes caused by geopolitical competition and climate change, such as rising sea levels and extreme weather events.

Unlike many other creative sectors, architecture is a heavily regulated field. There are many regulations regarding ecological construction at both the EU and the national level. In Finland, general architectural guidelines are outlined in the **Towards Sustainable Architecture. Finland's national architectural policy programme 2022–2035 Apoli**.[2] The programme sets a path for the sector's development in accordance with the principles of sustainable development, and names four dimensions of sustainability, including cultural sustainability. The vision for 2035 envisaged in the programme covers four themes: promoting the ecological sustainability of building design, supporting climate- and biodiversity-aware land use, the circular economy and low-carbon approach, and flexible and diverse use of premises, buildings and areas. In addition, the Confederation of Finnish Construction Industries RT has prepared a **Low Carbon Industry 2035 roadmap**, the purpose of which is to achieve an effective reduction in emissions. Attention is paid to the role of

Architecture is most likely a creative sector that will be required by law to produce emissions calculations in the near future. Measures required by the new Building Act include producing a climate report for all buildings, including a carbon footprint calculation.

The Act will enter into force on 1 January 2025.[3]

1 https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/163757/VN_2022_1.pdf?sequence=1&isAllowed=y
2 https://julkaisut.valtioneuvosto.fi/handle/10024/163757
3 Seppo Törmä, Principal Lecturer/Responsible for the theme of digitalisation of construction, Metropolia University of Applied Sciences (statement 6.10.2023)

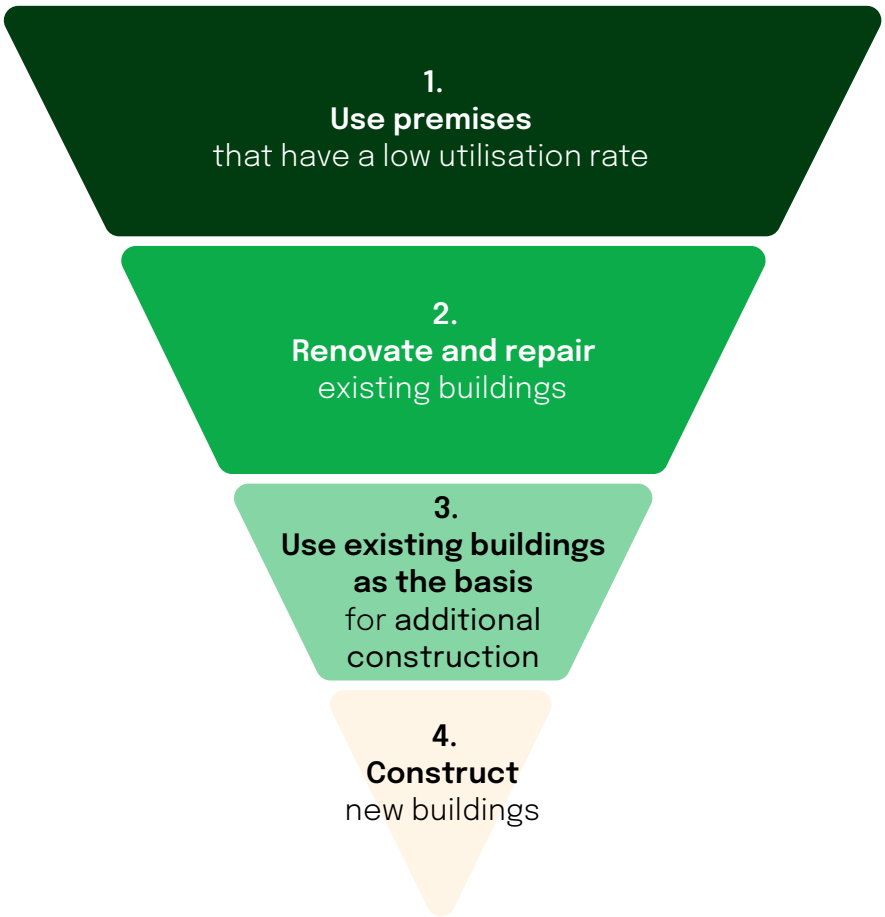
development, learning and research in the programme. Many aspects of architecture are bound by the Land Use and Building Act, which is currently undergoing a legislative reform.

Apoli, Finland's national architectural policy programme for 2022–2035, also introduces a new concept of architectural sustainability, which is based on cultural sustainability and supports ecological, economic and social sustainability. This concept is expressed in a high-quality building culture, *Baukultur*, that covers both existing buildings and other elements of cultural heritage. Architectural sustainability means long-lasting, aesthetic and functional quality. The overall goal is to reduce the footprint of construction and increase the handprint of architecture. Architectural sustainability is a step towards a more sustainable future.

This requires the aesthetic and ecologically sustainable use of the existing building stock. The challenge here is finding ways to ensure the efficient use and maintenance of the existing building stock, the reduction of material and energy consumption, and the reuse of building materials.

The preferred approach to sustainable design:

1. Use premises that are vacant and suited for dual-purpose use
2. Repair existing buildings
3. Expand old buildings
4. New build should be the last resort



Hierarchy of resource-efficient construction.
Original concept by Matti Kuittinen, Aalto University.

Architects as active agents in the sustainability transition

Architecture professionals and practitioners have actively raised awareness of and discussion about ecology. The Finnish Association of Architects, SAFA, has published a policy paper titled **Towards a sustainable built environment.**[4] The paper states that architecture should address low-carbon construction, energy efficiency, sustainable use of natural resources and mitigation of climate change. Architects worldwide have drawn attention to the impact of climate change and the future on the architect's role and called for new ways of thinking.[5]

Architectural competitions are regularly organised in Finland, for which EKO-SAFA, the association's sustainability subdivision, has prepared guidelines. The Building Information Foundation is in the process of creating a set of criteria for functional housing, in which ecological aspects related to maintenance and serviceability are taken into account. The Finnish Association of Interior Designers SIO aims to promote sustainable development values, including responsible consumption. In SIO's workshops, participants identified the most impactful sustainability actions. These included recycling, the design and use of new sustainable products and creating a strong knowledge base about them, managing the carbon footprint and handprint in adaptive reuse projects, and interior design in line with the principles of the circular economy.

Potential for collaboration between architecture and other creative fields

In terms of the emissions generated by the creative industries, emissions from buildings and energy solutions play a big role. Climate-friendly access to buildings by public transport, cycling or walking is considered important. Consequently, building solutions made in the architectural design stage have a significant impact on the emissions of other creative sectors. Architects have the power to influence some of the issues concerning buildings by choosing a specific form of energy in the design stage. In addition, how ecological the building is depends on the materials chosen; how ecological they are and whether they can be repaired.

Interior design architecture creates new furniture based on the circular economy. These can be used in various facilities occupied by the creative industries, including in standard office spaces. In addition, the work of interior architects interfaces with work in other creative fields, such as set construction and facility use planning. The exchange of information, shared learning and material sharing between creative fields could be fruitful.

Discussing the role and nature of architecture specifically from the creative industry perspective highlights the positive effects of creative architecture on the environment or even people's daily behaviour. To fully understand and embrace the transformative role

4 safan_ilmasto_linjapaperi_2704.pdf
5 https://www.safa.fi/arkkitehtiuutiset/arkkitehdit-kokoontuivat-koopenhaminassa-keskusteluissa-korostui-muutos-joka-vaistamatta-koskee-niin-maapalloa-kuin-arkkitehdin-roolia/

of architecture, training and education is needed, as well as a profound change in attitudes and mindsets within the sector.

Proposed solutions

Towards zero carbon

- Minimise energy consumption with optimal use of space.
- Minimise the carbon footprint of manufacture, construction, use and demolition.
- Maximise the carbon handprint by reusing carbon stocks and construction products, and by choosing renewable energy.
- More active and innovative use of renewable forms of energy, such as placing solar panels on bicycle shelters.

Circular economy

- More flexible space solutions and multipurpose facilities. Premises could be used by one set of occupants during the day and by another one at night.
- Prioritise solutions that promote the circular economy (durable building elements and materials, repairability, reuse).

Biodiversity, cultural heritage and cultural environment

- Be mindful of natural values in built-up areas (exposed bedrock, forest floor, floodplains).
- Promote biodiversity (green roofs, solutions for courtyards, utilisation of storm water runoff) and maintain green structure networks.
- Foster the cultural and built heritage and combine cultural landscape and archaeological values while taking legislation into account.

Encouraging ecological behaviour with architectural design

- Promote sustainable travel and transport (safe and aesthetic bicycle parking stations, wintertime snow and ice management to prevent slippery roads, storm water runoffs).
- Instigate change in consumer behaviour: architects play a significant role as designers of spaces and environments that encourage more sustainable consumer behaviour.

Collaboration

- Encourage discussion between architects, builders and property developers about sustainable development, including the circular economy, emissions and biodiversity, without forgetting the need to educate occupants and residents.
- Encourage discussion between town planners and architects about ways of highlighting the need for green planning that supports biodiversity, and set tangible goals.

- Join forces with building owners and communities to achieve more efficient use of the current building stock and to encourage good maintenance and repair. Increase interaction between architects and occupants in the creative fields on how to use the spaces more flexibly and to achieve a higher utilisation rate.
- Increase interaction, exchange of information and cooperation between interior design architects and performing arts professionals (set design, etc.) regarding the use of materials and decor in the premises occupied by creative industry practitioners.
- Creative industry professionals and practitioners could organise ecological design competitions for new premises.
- Accessibility: creative solutions in accessibility design can ensure that buildings are functional and attractive to all users, including older people.

Education: replacing prejudices with radical creative thinking

- As outlined in Finland's national architectural policy, the importance of creativity, knowledge and responsibility should be emphasised in architectural education to find ways to solve ecological problems. We need to find ways to renovate old buildings and to create new buildings that meet sustainability requirements.
- Sustainable design and construction based on the latest research data will be made an overarching principle in architectural education.
- Find ways to create space without new build.
- Discover the benefits of dual or multi-purpose use. We need more buildings that function as offices during the day and serve another purpose in the evening, such as a hotel or a club.
- Actively instruct occupants on how to make more sustainable choices in terms of energy use, cooling, etc.
- Advocacy work on building regulations at both the national and EU level to ensure they encourage and enable more efficient recycling of construction materials.
- To shake off old prejudices, architectural degree programmes should provide in-depth information about recycled materials, and continuing education on the subject must be provided.
- Provide more education on how to recover materials during building demolition and how to reuse them.
- Continuing education is needed to allow architects to specialise in ecologically sustainable design. Currently, industry pioneers are encouraged to lead the way but gradually all architects should transition to sustainable design.

8.2 Audiovisual industry

The turnover of the Finnish audiovisual sector was EUR 1.6 billion in 2022. The industry employed 9,300 people in more than 2,000 companies.[1]

There are 183 cinemas in Finland. In 2022, visits to the cinema totalled 5.8 million and they generated box office revenues of EUR 72.3 million. There were 217 premieres in 2022; 58 of those were for Finnish feature films.[2]

According to the Finnish Media Federation, the radio and TV industry employed 741 people in 2021. According to the federation, the market value of the TV industry in Finland was EUR 1.2 billion in 2021. In 2018, 77% of Finnish people aged 15–69 watched TV every day.[3]

Baseline

According to the Finnish Film Foundation's ecological survey of production companies conducted in 2020, about half of the respondents had an environmental strategy in place, and almost 90% of production companies considered environmental responsibility one of their values. Respondents to the survey identified lack of time and general shortage of resources in the industry as the biggest challenges. For her master's thesis, Laura Ridell from LUT University interviewed seven production companies in 2023. Her conclusion was that sustainability is currently poorly addressed in Finnish fictional film production. Ridell's interviews revealed that the companies were aware of sustainable practices, but often failed to put them into practice.

Audiovisual Producers Finland APFI has published more detailed information on the carbon dioxide emissions of Finnish productions in 2022. This information is based on productions pre-selected to use the **Albert** toolkit and productions that adopted it when the tools were made freely available to all Finnish production companies in June 2022. The calculations included 23 TV productions, but no feature film productions. Logistics accounted for the majority – 77.5% – of the carbon dioxide emissions of the participating productions. The next emission categories were premises not used for filming, 14%, and material procurement, 7%. In addition, emissions were generated in accommodation (0.6%), post-production (0.2%) and waste (0.1%). The data shows that Finnish productions were responsible in terms of energy consumption, as about half of the energy used in the productions was renewable. Almost 10,000 hot meals were consumed, more than half those vegetarian. *Dance Brothers*, produced by Endemol Shine Finland, was identified as a flagship production. It was able to reduce its carbon footprint by 80% and was the only one to receive an actual environmental certificate[4].

It should be noted, however, that the albert toolkit focuses only on the production stage and completely overlooks the consumption stage, i.e. emissions generated during the consumption of a film or TV product. According to the estimates of the majority of the creative industries that participated in the LuoTo process, by far the largest share of emissions are generated by end users and during the consumption of the product. There has been international research into this matter, but it has rarely been independent. In a commentary published by the International Energy Agency, it is estimated that the climate impacts of streaming video remain relatively modest.[5]

1 Review of the creative industries 2023 https://mediabank.businessfinland.fi/l/FPSW2HdQQz9p/f/h7Lk
2 Finnish Film Foundation annual statistics 2022 https://www.ses.fi/wp-content/uploads/2023/05/SES-Elokuvavuosi-FactsFigures-2022.pdf
3 https://www.medialiitto.fi/toimialatieto/tilastot/
4 https://apfi.fi/ajankohtaista/suomen-ensimmaiset-tilastot-kotimaisten-audiovisuaalisten-tuotantojen-ymparistovaikutuksista-julki/
5 https://www.iea.org/commentaries/the-carbon-footprint-of-streaming-video-fact-checking-the-headlines

Industry goals

Finland's audiovisual industry has set itself very ambitious sustainability goals as part of the Audiovisual Sector Growth Agreement (Publications of the Ministry of Economic Affairs and Employment 2023:33). One of the goals is to make **Finland the most responsible country in the world for audiovisual productions** in terms of ecological, social and economic sustainability. All companies in the **industry's value network aim to be carbon-neutral by 2030**. The growth agreement calls for a more systematic approach to corporate responsibility, documented action plans, management and deployment of sustainability across the organisation, and suitable metrics for tracking sustainability performance. This way, sustainability could be turned into a competitive advantage. The goal is to have all audiovisual industry players work sustainably, pursue shared goals and play by the same rules. A carbon footprint calculator should be applied to all audiovisual content produced in Finland, and productions should be able to win an environmental certification.[6]

According to the Audiovisual Sector Growth Agreement, ecological corporate responsibility involves minimising the environmental impacts of business operations, which can be achieved by prioritising ecologically sustainable materials and practices, or by creating sustainable production processes. The agreement stipulates that from now on, companies will report annually on their social responsibility performance. Several indicators are available for reporting.

While the industry has been unanimous in setting the highest possible goals for ecological sustainability in the sector's growth agreement, initial research and statistics show that there is a long way to go from the baseline to the target situation.

Audiovisual sector's ecological sustainability projects

In terms of sustainability, the audiovisual sector currently focuses almost entirely on the albert toolkit adopted by APFI and other partners.[7] The albert toolkit[8] provides tools for measuring the carbon footprint of productions.

In 2019, Kaika Astikainen and Anne Puolanne published the **Ekosetti** guidebook to environmentally sustainable operations, written for the Finnish audiovisual industry.[9] As the guide points out, limited budgets have always encouraged the Finnish audiovisual industry to be economic and to run productions largely through rentals, sub-contracting and outsourcing. The guide provides instructions and guidelines on waste management, energy use, filming locations, accommodation, technology, staging, costumes, make-up, catering and post-production. **Green Cinemas, a guide on how to run a more ecologically sustainable cinema**, provides practical advice on cinema technology and accessibility.[10]

6 Audiovisual Sector Growth Agreement, Publications of the Ministry of Economic Affairs and Employment 2023:33
7 https://apfi.fi/kestavan-kehityksen-strategia/
8 https://wearealbert.org
9 https://ekosetti.fi
10 https://issuu.com/ladymov/docs/ekologiset_elokuvateatterit

Digital solutions will play a growing role in the audiovisual industry as it strives for carbon neutrality. One of the services in the pipeline is **SharEco**, developed by the Osuuskunta Sankariliiga cooperative. It is a digital service platform for audiovisual and performing arts productions and professionals. The service aims to provide professionals with better and more useful digital tools, to improve the sector's practices in general, to reduce the amount of waste and to increase recycling.

No competence assessment has been conducted in the sector regarding ecological sustainability, nor have there been many other projects that focus on competence. APFI offers training on the use of the albert toolkit in Finnish and English, for free. The two-hour online training is open to everyone. **EcoLab Helsinki** was a short training session of a few days, during which participants learnt about the job description of eco-coordinators, and steps were taken together with EarthAngel company to create training leading to the certification of eco-coordinators. In autumn 2023, the Finnish Film Foundation helped Finnish participants to join the Nordic eco-coordinator training programme[11].

In short, tangible measures have been taken mainly to improve the sustainability of production companies and productions. LuoTo workshops and proposed measures revealed that other groups of professionals also want to contribute to the ecological sustainability of the audiovisual industry. In particular, further discussion in specific reference groups was called for, as well as tools and support for those not covered by the albert environmental system. The albert toolkit should be made available to the sector's educational institutions immediately, so that future generations can learn about the sector's environmental work at school.

Proposed measures

- Given that the growth agreement sets the toughest possible goals for the industry, it is important to outline a detailed plan to meet the goals.
- The growth agreement requires that the carbon footprint is calculated for all productions. The same requirement should be extended to the entire film industry and most of the TV industry.
- Industry surveys have revealed that production companies know how to operate more sustainably but are currently not doing so. Measures such as better resourcing should be taken to remove any obstacles to sustainable practices.
- An extensive competence survey should be carried out in the audiovisual sector to assess competences and identify competence gaps.
- Opportunities for further discussions should be offered to various players in the audiovisual industry in their own reference groups.
- Digital tools should be created and made available to all industry practitioners, not just producers.
- The albert system and toolkit should be made available to other user groups, such as the sector's educational institutions

11 https://www.ses.fi/ajankohtaista/hae-yhteispohjoismaiseen-av-tuotantojen-ekokoordinaattorikoulutukseen/

Production

Audiovisual Producers Finland, APFI, Finland's trade association for producers of audiovisual content, has created a national sustainability strategy for the Finnish film and television sector. The strategy is built around the global **Agenda2030** for sustainable development. Many of the sector's organisations and professionals have adopted the sustainability strategy. APFI has introduced the international albert environmental toolkit to Finnish production companies, which they can use to calculate the carbon footprint of their productions. In Finland, all professional productions and production companies of all sizes can currently use the toolkit free of charge.

In productions, everything starts with financing. Current financing models not only encourage productions to be international, but also to generate completely unnecessary emissions. The industry needs to join forces and conduct a global reassessment of financing models, and possibly take action to discontinue the existing models in a controlled manner. Various incentives and local financing models encourage productions to travel around the world, often for no good reason. In 2022, Ivar Kohn of the Norwegian broadcasting company NRK launched a plea for the Nordic industry to make financing models more sustainable.[12] If the audiovisual industry wants to reduce its emissions, it should follow up on Kohn's idea. According to APFI's calculations, travel and transport caused 77.5% of emissions in productions. Air travel was the biggest source of carbon dioxide emissions, although it was only used in six of the 23 productions included in the calculations.

Clients also play a key role in productions. The Finnish Broadcasting Company YLE, commercial TV channels and streaming services can set conditions for the content they buy. In fact, YLE has created a Supplier code of conduct for its partners.[13] There is evidence from around the world that when clients set conditions, productions become more sustainable.

Lack of time is often the reason why crews don't have enough time to plan operations with sustainability in mind. Better planning is essential. In fiction productions, rehearsing scenes in advance helps to reduce the environmental load as it allows everyone to work more efficiently during the actual filming. Other sources of environmental burden in audiovisual productions include logistics, energy consumption, waste, catering and post-production. Filming locations such as studios can significantly contribute to improving the industry's sustainability.

12 https://nordiskfilmogtvfond.com/news/stories/nrk-ivar-kohns-rallying-cry-to-create-a-sustainable-nordic-industry
13 Supplier code of conduct (yle.fi)

Proposed action to change industry structures

- Industry financiers: the Finnish Film Foundation, the Promotion Centre for Audiovisual Culture AVEK and the film commissions, as well as big clients such as YLE and other TV channels and streaming services, play a key role in terms of the industry's green transition. Eligibility criteria and clients' demands largely dictate how operations are run in the field.
- Immediate steps should be taken to reassess and eliminate harmful international financing models. Incentives and regional funds push productions to travel great distances to meet the financing conditions, thereby considerably increasing the negative environmental effects of productions.
- Producers identified lack of time and resources as the biggest obstacles to sustainability. More resources should be allocated to advance planning to enable the implementation of more sustainable practices. Audiovisual industry players would prefer carrots instead of sticks as the incentive for sustainability work. While everyone agrees that compiling statistics and tracking indicators is useful, they felt additional resources would be the most important thing.
- Financing should enable productions to create more sustainable practices, for example by recruiting eco-coordinators.

Proposed action for production companies

- According to industry professionals, not enough information is passed around within the industry about good sustainability practices. All reference groups should be more actively engaged in discussion about ecological sustainability. It would make sense for the groups to interact horizontally within the industry; cinemas, for instance, would benefit from a discussion with theatres and other event organisers.
- More information is needed about business potential and international opportunities associated with sustainability.
- The industry needs information packages about the effects of different choices on the environment. Carbon budgets and other similar models should be explored.
- To facilitate procurement, a list of service providers who have incorporated sustainability into their operations is needed.

Filming locations

In Finland, Film Finland and regional film commissions are the film location promoters. The need to protect filming locations and biodiversity have already prompted film commissions in Finland to publish industry guidelines. In Lapland, for example, the **Film Lapland Code of Conduct** and **Production Guide** were published, which contain instructions on how to plan a sustainable production in the region.[14]

Recommended action

- Regional filming guidelines should be prepared which are mindful of the region's biodiversity and ecological production methods.
- Film commissions should offer strong local support for planning sustainable productions.
- Film Finland should compile nationally applicable guidelines.

Screening, streaming and distribution

The albert toolkit adopted by the APFI is intended for use in the production stage, and once the production is finished, its carbon footprint calculation stops. However, this is not where the production's life ends. No reliable emissions data is available for screening and distribution.

In cinemas, sustainability issues are very similar to those experienced at events, with the exception of cinema technology.

As for streaming, there is very little data available internationally, and the results seem to vary considerably. The International Energy Agency IEA estimates that data transmission and data centres account for 1–1.5% of energy use globally. This is equivalent to 0.6% of the global carbon dioxide emissions. The IEA calls on all players to halve these emissions by 2030.[15] The water consumption of data centres has also been under scrutiny. In 2023, Google released figures for its water usage for the first time, and reported that it used 5.6 billion gallons of water in 2022. There has been a 20% increase in this number, apparently due to the increased use of artificial intelligence. It is unclear how much of the water was used for YouTube services, for example.

- Efforts should be made to calculate the carbon footprint of screening, streaming and distribution.
- The industry baseline should be established.

14 https://www.lapland.fi/film/plan-your-production/code-conduct-production-guide/
15 https://www.iea.org/energy-system/buildings/data-centres-and-data-transmission-networks

Impactful content

In the audiovisual industry, content has the power to significantly impact viewer behaviour. Audiovisual content reaches almost every Finn on a weekly basis.[16] The industry has the opportunity to introduce new, sustainable practices through content and make them the new norm. When the main characters in a viewer's favourite series make sustainable choices in their daily lives, these choices gradually become a normal part of everyday life. Moreover, the industry can address ecological sustainability directly by raising important topics. In television, documentary films and investigative journalism in particular have played a major role in raising viewer awareness of ecological issues.

There is still relatively little research on the audiovisual industry's content from the sustainability perspective. **A Glaring Absence** report published by USC Annenberg and Good Energy in 2021 noted that climate change is rarely mentioned in scripted content.[17] Inspiring guides for screenwriting in the age of climate change are already available, such as the **Good Energy Playbook**.[18]

Distributors worldwide have been active in bringing climate change themes to the fore. In the UK, for instance, the BBC led the way in signing the **Climate Content Pledge** in 2021.[19]

- Impactful content is a huge opportunity for the audiovisual industry, which is why general understanding of its importance and research on the matter should be increased.
- Screenwriters play a key role in bringing climate themes into public view.
- Clients who order scripted content have the opportunity to provide impactful content to viewers and thereby promote discussions on climate change and the biodiversity crisis.

16 https://www.medialiitto.fi/toimialatieto/mediafaktat/
17 https://learcenter.s3.us-west-1.amazonaws.com/ClimateUnscripted_LearCenter.pdf
18 https://www.goodenergystories.com/playbook
19 https://www.bbcstudios.com/news/the-climate-content-pledge-one-year-on/

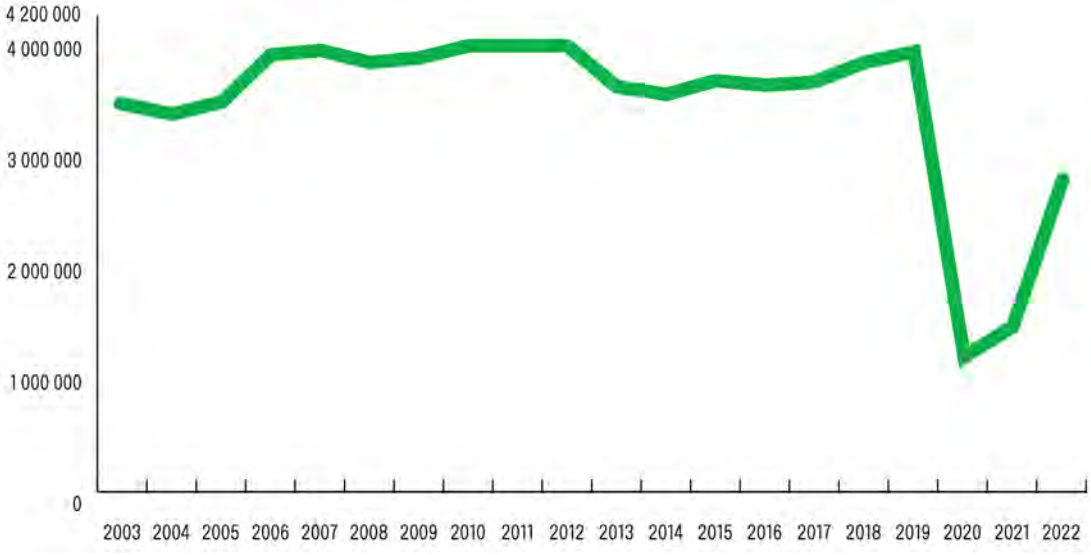
8.3 Performing arts

Performing arts as a sector covers a multitude of productions carried out by a wide range of professionals and practitioners. It is a multifaceted sector ranging from suitcase puppet theatre to theatres, dance groups and production centres, circus groups and experimental performing art, all the way to major institutions such as the Finnish National Opera and Ballet.

The performing arts sector is divided roughly into two: entities eligible for government funding under the Act on Discretionary Government Transfers and entities that are not eligible. Organisations covered by the state subsidies system reach about 90% of all performing arts spectators, and entities not covered by the system reach the remaining 10%.[1]

In 2022, performing arts reached approximately 2.85 million spectators. The number of performances was approximately 14,000, nearly 10,600 of which were by entities not covered by the state subsidies system. There were 420 premieres and 246 world premieres. In addition, streamed events and recordings were viewed nearly 1.5 million times.[1] These numbers are linked to the sector's emissions in terms of audience travel and transport.

Performing arts spectators
2003–2022



The number of performing arts spectators. Theatre Info Finland TINFO 2023.

While no comprehensive data of the environmental effects of the performing arts sector is available, studies conducted thus far allow us to draw conclusions about the biggest sources of emissions. The most extensive studies so far have been carried out by the Finnish National Opera and Ballet and Lahti Symphony Orchestra, or Sinfonia Lahti.

The Finnish National Opera and Ballet calculated the carbon footprint of its operations for the first time in 2021, based on its operations in 2019. The calculations revealed that the most significant source of emissions was audience travel, which accounted for 63% of all emissions.[2] The biggest source of emissions from the Opera's activities was products and services acquired; they accounted for 58% of emissions.[3] The Finnish National Opera is a carbon-neutral building, which is why its emissions are not accounted for in the analysis.

According to Lahti Symphony Orchestra's carbon footprint calculations in 2015,[4] audience travel accounted for 59% of all emissions generated in the orchestra's activities. Other sources of emissions were concert trips and tours with a share of 18%, and staff travel with 6%, which means travel and transport represents more than 80% of the total greenhouse gas emissions. Sinfonia Lahti's energy consumption represented about 14% of emissions.[5]

These figures lead to the conclusion that audience travel is the largest source of emissions in the performing arts sector. Emissions are mainly caused by fossil transport fuels, which should be replaced with more sustainable alternatives.

It is also important to note that a significant part of the indirect emissions caused by the performing arts are beyond the direct control of the sector's organisations. However, experiments with stakeholder travel and transport combined with effective communication can be extremely impactful.

1 Statistics of the performing arts - The year 2022 of theatre, dance and circus. Theatre Info Finland TINFO 2023.
2 Finnish National Opera and Ballet's carbon footprint. Etteplan.
3 Responsibility. Finnish National Opera and Ballet.
4 The carbon-free Lahti Symphony Orchestra project takes the orchestra to the woods to plant trees. Lahti Symphony Orchestra. 22.5.2019.
5 Virolainen, P. 2015. Thesis project. The carbon footprint of a symphony orchestra. Case: Lahti Symphony Orchestra, p.82

”ENVIRONMENTAL RESPONSIBILITY to us at the Finnish National Opera means monitoring and minimising the ecological footprint of our operations. In practice, this includes digitalising our processes, improving our energy efficiency, choosing environmentally sound materials and enhancing recycling. We are also constantly looking for ways to go greener, such as joint procurement and buying local.

The first ever carbon footprint calculation of the Finnish National Opera and Ballet was completed in 2021 (based on the data of 2019), and in 2022 we started work on a zero-carbon roadmap.

In summer 2020, a solar power system was installed on the roof of the Opera House as part of the Senate Properties' national solar programme. Our rooftop system currently comprises 122 solar panels, the total size of which amounts to more than 200 square metres. The system's annual electricity production, approximately 34 700 kWh, reduces our carbon emissions by 16 tonnes. The rest of our electricity consumption is covered by 100 per cent renewable hydropower. The district heating and cooling used at the Opera House are 100 per cent carbon neutral.

Products and services we buy generate the largest share of our total emissions (56%), followed by production goods (14%). In set design, the majority of emissions come from the sourcing and use of metal products, on stage from the use of electronics, and in costume design from the sourcing of fabrics and textiles. When a production reaches the end of its performance life cycle, we separate the materials of its sets and recycle them.

Parts of our sets and furniture are delivered to a circular economy service provider. During refurbishment projects we save items for future repairs or replacements. We forward our cutting waste and other forms of textile waste to a Finnish company that processes textile fibre into products used in industrial maintenance. Larger pieces of cutting waste are given to children's daycare centres for craft material. Our unique costumes are given new lives either through alterations or at our popular flea markets.”

The performing arts sector has initiated measures to promote ecological sustainability

Measures taken to promote sustainability in the performing arts sector are as varied as the sector's professionals and practitioners. Sustainability is taken into account both in artistic content and production structures. Some players have enough resources to advance sustainability work while the majority struggle with financial pressures. The LuoTo workshops organised in the spring of 2023 delivered a clear and simple message: everyone in the sector lacks the resources to engage in environmental work in addition to their regular work, and additional resources are needed for the transition to carbon-wise practices. To carry out the sustainability transition, it is vital to invest in increasing awareness and participation. Ecologically resource-efficient practices can also promote economic sustainability.

There are those in the performing arts sector who are already actively involved in environmental work and have ambitious goals for both artistic productions and their contents. Significant measures to promote ecological sustainability in recent years include the Finnish translation of the **Theatre Green Book**,[6] **Vision for education 2030 in performing arts**, which calls for a more sustainable lifestyle and ecosocial education,[7] and the Ethical Guidelines for the Art and Culture Sector.[8] In addition to the above, the sector has a long history of using content in dance and theatre as a means of raising awareness of environmental themes. In addition, the principles of the circular economy have been adopted.

The LuoTo project's preliminary report and workshops show that the key challenges involved in the sector's sustainability work have been identified and a wide range measures to address these have been proposed, ranging from action to activate the public to challenging cultural norms.

The performing arts touch people through engaging content

While the general sentiment in the sector is that the physical and scientific root causes of climate change[9] are somewhat far removed from the core of the performing arts, the climate crisis has prompted the sector to explore ways of reaching and touching people. The performing arts sector takes an active interest in the matter and wants to make a difference. The sector welcomes all opportunities to reduce the environmental impact of productions and performances.

However, the performing arts sector's greatest strength is its ability to influence audiences by visualising the most important messages of our time. Performing arts have the ability to activate, take an active position and promote sustainability on a wide front. The LuoTo

6 Theatre Green Book – Finland.
7 Vision for education 2030 in performing arts. The Theatre Academy of Uniarts Helsinki.
8 Ethical guidelines for the art and culture sector. Forum Artis.
9 The causes of climate change. The European Commission.

workshops highlighted the ability of the performing arts to verbalise emotions. Based on the feedback received in the workshops, this ability should be used in art aimed at different age groups, including children and young people, to address difficult topics and to increase ecosocial education. Collaborations between science and the arts could help to influence attitudes and understanding even more deeply.

Room for improvement in the operating conditions

According to performing artists, the sector's general operating conditions should be modified to allow artists to ambitiously pursue ecological sustainability. A number of factors currently stand in the way: the funding system, which pushes practitioners to create new works, the lack of players in the circular economy, and the fact that the environmental training for performing arts professionals is still in its infancy. Some have been more successful than others in acquiring training and education, building networks and allocating resources for environmental work.

The process of changing old practices, acquiring new professional skills and goals, and reinventing yourself is considered arduous, particularly on top of your regular job and workplace development. Support is called for in daily environmental efforts while contemplating the role of artistic content in a wider societal cultural transformation.

Proposals for measures to promote the sector's sustainability transition

1. Shared values and strategies

Management's commitment through operational strategy and value discussions creates the foundation and goals for environmental work resourcing. Although sustainability is often included in the organisation's values or even in its strategy, without tangible action the goals can remain disconnected from real life. Promoting ecological sustainability in an organisation requires commitment and systematic work towards goals, as well as individuals' interest and commitment to common goals. It is also important to gain new employees' commitment to the organisation's ecological values and actions. It would be important for senior management to show their commitment to sustainability and to lead by example.

Proposed action:

- Include commitment to environmental work in the organisation's strategy and value proposition.
- Organisations should prepare carbon budgets for specific productions and/or departments to measure sustainability

performance and demonstrate its importance to work groups. The organisation's own internal emissions compensation scheme can be used.
- Support should be provided during the transition phase for experimenting, using time and making acquisitions that help to prioritise ecological alternatives and learn about the process.
- Review collective agreements with the objective of enabling employees to promote ecological sustainability within the time frame reserved for production planning.
- Explore options to extend the life cycle of productions, and emphasise the importance of planning as a way of ingraining ecologically sustainable practices.
- Engage the organisation's management to lead the organisation's environmental efforts.
- Provide an opportunity for visiting artists to adopt the organisation's values or to introduce their own value-based choices.
- Implement existing ecological and ethical guidelines.
- Highlight sustainability aspects in all communications on a wide front

2. Continuing education and training

During the LuoTo project's workshops, participants expressed a need for further education on sustainability issues to enable them to take action to promote the sustainability transition in their work. Customised continuing sustainability education would also bring added value to artists not eligible for government funding, as sustainable business requires continuing learning and acquisition of new skills. It is essential to identify those in the organisation who will assume responsibility for ingraining and implementing the environmental strategy. Who will undergo training and at what stage of their career path? What competence does the employer value? Will employees need environmental competence in addition to professional competence in the future?

Proposed action:

- Organisations should prepare an assessment of additional environmental competence needed.
- It is important that senior staff undergo continuing education.
- Higher education institutions should offer continuing education to address the changing operating environment: the importance of climate change and biodiversity loss and how to introduce more sustainable practices in different fields.
- Apply the sector's LEAN principles: minimising waste and increasing efficiency often align with environmental work and resourcing.
- Workshops and customised training should be offered to different professional groups.
- Integrate sustainability into basic education: provide students with an opportunity to put theoretical knowledge gained in school into practice in workplaces.

- Make sure that the special features and needs of non-government funded performing arts and the changing environment are taken into account in training and education.
- The organisation should provide staff with training on sustainability topics, including environmental awareness and the principles of sustainable development. This would help organisations implement sustainable practices.

3. Funding

Challenges identified in terms of the existing funding for performing arts include the lack of prioritisation of ecologically sustainable projects and lack of fact-based, equal evaluation criteria for ecological sustainability. To benefit from the existing funding system, practitioners need to create new art and new performances at a fast pace, which increases the burden on the environment as well as on the artists and other professionals. If ecological criteria were included in grant applications, that would require more environmental expertise from applicants, peer reviewers and funding providers.

Those working on grant work and in non-government funded projects with less constraints feel that combining artistic and environmental work is problematic due to the short life span of projects, as decisions and acquisitions are, in most cases, made on a one-off basis and for temporary purposes. This means there is insufficient time to formulate and instil sustainable practices and procedures, or they are different in each project.

Proposed action:

- Ecologically sustainable ways of producing art should be considered in the applicant's favour in the evaluation criteria.
- Measures should be taken to provide continuing education to applicants, peer reviewers and funding provider agencies, and to build a stronger knowledge base to increase ecological competence and responsibility.
- Link ecological indicators and goals to grant award decisions.
- Support the maintenance of works.
- Funding can also support revivals of past performances or the reuse of previous works. This way previous works can serve as the soil for new ones.
- With longer work series, measures should be available for supporting sustainable practices.
- In funded productions, the accumulated skills and know-how should be harvested.
- It is important to raise general awareness of environmental responsibility in connection with financing decisions.
- Financiers should provide guidelines to artists for paying more attention to ecological sustainability in their funding applications

4. Material recycling and storage

Works in the performing arts sector have a short life span: days, weeks or – at most – months. Producing works is resource-intensive, and due to short performance periods they cause a significant burden on the environment. Another issue regarded as a challenge is copyright legislation, which sets limits on recycling the work as such. Reuse requires human resources, time and facilities where items can be temporarily stored, modified, disassembled and sorted. Especially in large cities, the high cost of facilities discourages repair and reuse and limits circular economy opportunities. Sets, props and equipment used in performances are not designed to be disassembled or repaired. It is very common to dispose of most of the materials used in sets after the project is finished or for it to be stored in private warehouses for possible reuse.

Proposed action:

- Start project planning with an inventory of existing items.
- Use standard parts, gradually increase their use and share with others in the sector.
- Design and create new elements to be modular, modifiable and reusable.
- Together with networks, create a documented inventory of resources in storage spaces.
- Set recycling goals for artistic work groups: no more than XX% new, no less than YY% old.
- Value choices: employ people instead of buying new elements.
- Discuss copyrights during project planning, revise agreements to be more permissive towards circular economy practices.
- Procurement life cycle assessments: procurement, use, repairability and modernisation during use, recyclability of components, end stage.
- Develop digital circular economy services for creative industry practitioners and professionals; provide access to documented inventories to everyone in the sector.
- Create common, shared storage spaces and resources.

5. Procurement and new technologies

The impact of procurement is often downplayed when the environmental effects of operations are measured. The environmental effects of procurement are the most difficult to assess due to global supply chains and the related transparency challenges. Measuring and assessing the environmental effects generated by subcontractors is difficult, and often impossible. Preparing an environmentally conscious call for tenders significantly increases the workload for both the client and the subcontractors and requires special expertise.

Performing arts is a very technology-intensive sector. Technical equipment and digital solutions are actively used in performances and productions. Technology is everywhere, from virtual performers and stages to live streamed performances, and international production teams to

modern LED and surround sound technology. Digital solutions, which are commonplace in productions, generate a significant environmental burden that has proven difficult to assess. Effects are largely hidden behind screens, in device components and in software code snippets.

Modern technology enables high efficiency and generates an ever-increasing share of productions' environmental effects, in fact to such an extent that measuring them is increasingly important. The production chains of technology are spread around the world, which is why the environmental effects are usually not generated in geographic areas with stringent environmental regulation.

Proposed action:

- Include an environmental responsibility perspective in the procurement process, e.g. score ecological sustainability in competitive bidding.
- Include questions regarding sustainability in invitations to tender.
- Use environmentally certified products, systems and services.
- For larger calls for tenders, develop a set of consistent and transparent indicators and share it with the sector's players.
- Request a list of performing arts subcontractors for the industry, e.g. from trade unions or other lobbying organisations.
- Explore and research the environmental effects of digital solutions.
- Compare the emissions of manufacturing physical and virtual sets.
- Compare audience experiences in physical and virtual performances.
- Reduce travel and transport in multinational productions by using virtual technology: working together on a virtual stage, providing online induction training, etc.
- Reduce emissions from travel and transport through live streaming

6. Communication and cooperation

It is entirely possible to make ecological choices in productions without compromising the artistic content of performances. Communication targeted at audiences can help pay attention to sustainable travel and transport, refreshments available during intermissions, and the backgrounds and values of the production. Performing arts have the ability to put into words current issues in ecosocial education, climate science and biodiversity loss, delivering a potentially very impressive and meaningful experience. Communicating about choices made in the production can provide a eureka moment for the audience. Well planned and targeted communication can significantly enhance the impact of art.

Proposed action:

- Actively inform audiences of ecological choices, even the smallest ones.
- Emphasise the importance of sustainability and the reasons for creating new solutions.
- Create a nationwide network to coordinate sustainability initiatives in theatres.
- Offer information and resources to the public to enable them to take

steps towards more sustainable lifestyles.
- Use cultural events as community forums where environmental issues are discussed and participation in local environmental projects is encouraged.
- Make a conscious effort to use the ability of performing arts to popularise environmental information and values.

7. Content and transformative power

The power of the performing arts lies in the ability of people to touch other people. A performer's key objective is to touch spectators, viewers and visitors with their performance. Performances aim to use art and interpretation to transport the audience to a place beyond our daily life. This power provides a major opportunity. Performing arts can play a significant role as a means of articulating and promoting the ecological sustainability transition and commenting on social problems and identifying solutions without compromising self-esteem and freedom.

Art makes an impact through personal experience, which is always unique and rarely reproducible. While it is not possible to deliver transformative power on demand, it is possible to define boundaries and support sustainability by negotiating resources on a sustainable basis and by reflecting on the values of our preferred aesthetics. Performing arts is also an excellent platform for experimentation and for identifying elements that contribute to an impactful and compelling experience. Performing arts can act as a laboratory for mixing contents and performers from different art forms to explore transformative power and experience. As new ideas are explored between members of the work group, the process itself becomes part of the members' transformative experience.

Proposed action:

- Conduct empirical research on the effectiveness of performing arts and create a set of indicators.
- Art institutions can offer training and resources to artists and audiences in sustainability matters.
- Explore the value base of art aesthetics in relation to ecological sustainability.
- Call unsustainable attitudes and norms into question and encourage the adoption of new values and behaviours.
- Reflect on the contents of performing arts in relation to ecological sustainability.
- Influencing attitudes with a focus on increasing understanding and raising awareness.
- Use artistic expression for processing and interpreting ecological themes. Be serious and science-based and playful and inventive at the same time.
- Use artistic work for advocacy and activism.
- Advocate for current (environmental) issues.
- Address ecological issues and offer new perspectives

8.4 Literature

The Union of Finnish Writers has a membership of more than 800, the Association of Finnish Comic Artists about 150, and the Association of Finnish Nonfiction Writers about 3,300. In 2022, the number of personnel directly employed by the publishing business totalled 1,161.[1] In addition to publishing houses, the publishing industry indirectly employs people in printing houses, logistics companies, bookstores, and libraries.

According to Statistics Finland, the value of the publishing industry (including magazines and online publications) amounted to EUR 1.7 billion in 2021, with literature accounting for 517 million. The value of the publishing industry increased from the previous statistical year but has not yet reached the pre-pandemic level.[2]

The accelerating transition in literature and media from printed books to the digital environment requires a more in-depth assessment from the ecological perspective. Digitization applies to both the publishing industry and libraries. The Government Programme for 2023 separately mentions the need to adopt a system for compensations paid for borrowed e-books and the establishment of a national e-library.[3]

Literature

Including ecological topics in literature can significantly contribute to raising readers' awareness of environmental issues and help to make more sustainable lifestyles and practices the new normal. Literature can offer solution-focused perspectives on environmental problems, raise discussion and, at its best, spark an understanding of the importance of preserving ecological balance and encourage people to take action to protect the environment.

Through literary works, authors can raise awareness about the effects of climate change and biodiversity loss. Literature can create visions of more ecologically sustainable (or dystopian) futures, which can motivate readers to take action and make ecologically responsible choices, reduce consumption, or redefine their relationship with living and non-living nature.

Non-fiction and textbooks can be used to convey accurate and reliable information about environmental crises, climate change and more ecologically sustainable lifestyles, as well as to offer a deep understanding of ecological processes and their interdependencies. Non-fiction and educational literature can reach readers from different age groups, which is crucial in order to raise awareness among large groups of people. Literature also plays an important role in the environmental education of children and young people.

Publishing

In recent years, sustainable development has become a popular topic in the publishing industry, which has led to concrete action to achieve improvements. In 2019, the carbon footprint of the media and graphic industry in Finland was approximately 488,000 tonnes of CO_2. This is equivalent to 1% of Finland's annual carbon dioxide emissions.[4] Carbon tracking is still in its early stages in the publishing industry: 29% of organisations with more than 10 employees have calculated their carbon footprint, and of smaller organisations only 5% have done so.

The Finnish Publishers Association's 2022 baseline survey showed that direct emissions (scope 1 and 2) typically account for just 10% of the industry's total emissions. This highlights the significant role of indirect emissions, especially from paper, printing production, transport, storage and disposal. The Finnish Media Federation has set a joint goal of resetting the direct emissions caused by the companies' own operations to zero by 2030. In addition, they aim to reduce indirect emissions by at least 30% by 2030[5].

1 Publishing industry statistics. Kustantajat.fi.
2 The Government Programme offers authors growth prospects, improvements and disappointments. Sanasto (Finnish literary copyright society). 19.06.2023.
3 Environmental impacts of the media industry and measures towards carbon neutrality. Gaia Consulting. 2021.
4 Environmental impacts of the media industry and measures towards carbon neutrality. The Media Industry Research Foundation of Finland. 20.9.2021.
5 The publishing industry and the climate. The Finnish Publishers Association.

Publishing industry players and sustainability projects

The Finnish Publishers Association has been active in assessing the industry's baseline situation and incorporating sustainability in the industry's practices. The breakdown of emissions in the publishing industry has also been analysed as part of the **Environmental impacts of the media industry and measures towards carbon neutrality** project commissioned by the Finnish Media Federation and conducted by Gaia Consulting in 2021. The project also helped the industry to set itself environmental goals and made recommendations to help the industry achieve these goals. "**Vastuullinen ja kannattava media-ala 2021 -tutkimushanke**" (VAKA 2021) (*The Responsible and Profitable Media Industry 2021 research project*) concluded that added value with respect to environmental responsibility is most often created through content, in other words when the media produces information about environmental problems. The Media Industry Research Foundation of Finland is funding two upcoming academic research projects that will analyse the environmental responsibility of digital media. Those interviewed in 2022 for the LuoTo preliminary report expressed the need for more ecological sustainability projects in the sector.

Companies in the field are at different stages when it comes to their sustainability efforts. Large publishing houses such as Otava, Sanoma, WSOY and Gummerus, which cover 70% of the market, all have their own sustainability programmes and emission reduction targets. Sanoma, for instance, is aiming for carbon neutrality across its entire value chain by 2030. According to its 2022 sustainability report, Sanoma has reduced its greenhouse gas emissions by 7% and emissions across the entire value chain by 8.2% in the past year.[6] According to its calculations, 95% of its 157,100 tonnes of CO_2 emissions are indirect (scope 3) and 5% are emissions from its own operations.

Environmental sustainability work in the publishing and media industry focuses on combating climate change. It should be noted however that, individual exceptions excluded, the sector has not identified goals for reducing negative environmental impacts and stopping biodiversity loss, even though the use of natural resources accounts for a significant part of the sector's environmental impact. Some publishers strive to use FSC-certified printing material, and some use it for the majority of their printing purposes. However, no commitments to fully switching to FSC certified products have been made, even if it would be the bare minimum requirement from a biodiversity loss perspective.

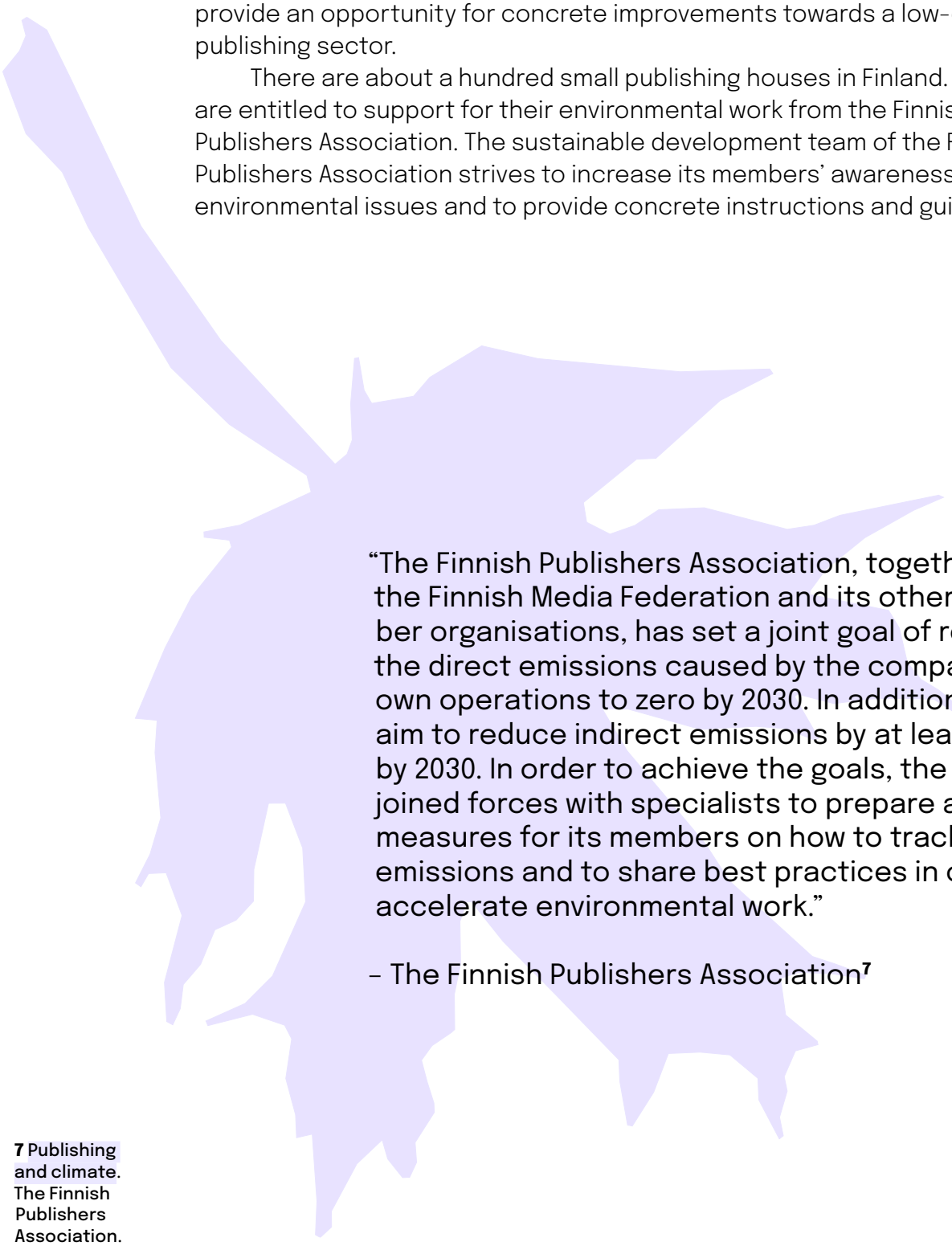
In addition, attention should be paid to improving the material efficiency of production, using more recycled materials, and reducing hazardous substances from printing inks and products. The introduction of the Nordic Swan Ecolabel on products would provide consumers with information regarding environmental protection during the manufacturing process. When digital services are provided, attention should be paid to the sustainability of service providers, including servers.

The Finnish Publishers Association conducts educational environmental surveys, which have provided valuable information about

6 Sustainability. Sanoma Annual Report. 2022.

the industry's carbon footprint and environmental impacts. Published in 2022, the first of these surveys provided an overview of the industry's baseline. In addition to providing data, the survey had a distinct impact on people's attitudes, and it drew attention to sustainable development in the publishing industry. Surveys help to understand what generates the biggest emissions in the industry and which actions are effective in promoting sustainability. The results of the surveys make it easier for the sector's players to allocate their resources and target measures to areas where the most significant environmental benefits can be achieved. They also provide an opportunity for concrete improvements towards a low-emission publishing sector.

There are about a hundred small publishing houses in Finland. These are entitled to support for their environmental work from the Finnish Publishers Association. The sustainable development team of the Finnish Publishers Association strives to increase its members' awareness of environmental issues and to provide concrete instructions and guidelines.



"The Finnish Publishers Association, together with the Finnish Media Federation and its other member organisations, has set a joint goal of resetting the direct emissions caused by the companies' own operations to zero by 2030. In addition, they aim to reduce indirect emissions by at least 30% by 2030. In order to achieve the goals, the FPA has joined forces with specialists to prepare a list of measures for its members on how to track their emissions and to share best practices in order to accelerate environmental work."

– The Finnish Publishers Association[7]

7 Publishing and climate. The Finnish Publishers Association.

Best sustainability practices in the publishing industry from carbon tracking to carbon handprint[8]

(***Modified with regard to the FSC certification: the PEFC certification was omitted from the recommendations***)

- Systematic environmental monitoring
- Adoption of an environmental system (e.g. ISO 14001, Green Office, environmental certificate for graphic production)
- Environmental criteria in subcontracting chains
- Procurement of equipment and other items based on environmental criteria
- FSC certification
- Forest protection
- Calculation of the carbon footprint of a product or an organisation (e.g. Climate Calc)
- Energy and material efficiency
- Buying or producing renewable electricity
- Carbon offsetting
- Carbon neutrality of a product or the entire organisation
- Handprint as a provider of information

Ways to reduce environmental impact

Climate impact: development areas

- Renewable energy
- Energy efficiency
- Content forwarding (e.g. environmental criteria for cloud services and logistics)
- Avoiding air travel

Relevant for which media industry players? All industry players

Use of natural resources: development areas

- Material efficiency and recycled materials
- Procurement, use and recycling of equipment
- Renewable energy
- Content forwarding (e.g. environmental criteria for cloud services)

Relevant for which media industry players? Printing, digital media, procurement chains

Biodiversity: development areas

- Renewable energy
- Recycled paper
- Nature conservation (e.g. supporting environmental organisations or the Natural Heritage Foundation)
- Influencing through content

Relevant for which media industry players? Printing, digital media, procurement chains

8 Environmental impacts of the media industry and measures towards carbon neutrality. Gaia Consulting. 2021.

Hazardous and harmful substances: development areas

- Further steps to make operations as environmentally friendly as possible (e.g. solvent-free printing, plant-based colours, replacement of other harmful substances)

Relevant for which media industry players? Printing business

Waste: development areas

- Reducing waste
- Circular economy, reuse as raw material, electronics recycling
- Better product recyclability printing operations

Relevant for which media industry players? Printing operations, procurement chains, digital media as applicable

Libraries

In 2022, there were a total of 714 public library service points in Finland and 124 mobile libraries.[9] Libraries were visited more than 41 million times, more than 80 million loans were registered, and more than 29,000 events and 26,000 user training sessions were organised. In total, libraries hosted more than 41,000 events. Events and user training sessions reached almost 1.4 million Finns.[10]

According to a survey entitled Finnish people and libraries 2023, conducted by Kantar Public for the Finnish Library Association, more than two out of three Finns (70%) said they had visited a library. Six per cent had done so at least once a week, and 24% 1–3 times a month. Two out of three families with children had visited a library with their child or children.[11] It is believed that this year the use of libraries will slowly return to the pre-pandemic level. The survey also revealed that libraries are considered important places to access reliable information and digital materials. Furthermore, users valued the role of libraries as providers of cultural events.

Members of the Finnish Research Library Association include research and art libraries, such as the libraries of universities and research institutes. The National Library of Finland is responsible for securing the availability of cultural heritage published in Finland. In addition, it acts as a national service and development institution for libraries and promotes international library cooperation.

9 Finnish Public Libraries Statistics.
10 Libraries support the literacy of children and young people. The 2022 statistics show a record number of loans. Regional State Administrative Agency. 3.4.2023
11 Sakari Nurmela. Finnish people and libraries 2023. Kantar Public.

Goals and environmental projects in the library sector

Public libraries are committed to the UN Sustainable Development Goals, six of which have been identified as key goals for libraries. Below, the links between libraries and these goals are explained.

3. Good health and well-being: Reading promotes well-being, and library card holders live longer.
4. Quality education: Libraries support the literacy of children, young people and adults, and promote lifelong learning. The environmental aspect is included in everything from children's story times to art exhibitions and events.
10. Reduced inequalities: The library is a basic service that is accessible to everyone free of charge. Libraries have zero tolerance for any form of bullying or discrimination. Libraries are responsible employers.
11. Sustainable cities and communities: Libraries comply with municipal environmental policies, and many libraries have their own environmental programme, certificate or eco-support system.
12. Responsible consumption: Libraries are circular economy pioneers and serve as a platform for the sharing economy. Libraries offer facilities and equipment for shared use, which reduces consumption.
13. Climate action: Libraries recycle and save energy. Libraries offer up-to-date and reliable information on environmental issues and help visitors to find information.

Public libraries are committed to the UN's Sustainable Development Goals.

In a project entitled **The Environmental Awareness of Public Libraries into the 2020s** the environmental awareness and actions of libraries were analysed. In many ways, the project provided the momentum libraries needed to launch their environmental work. The project also involved creating the **Green Library** website, which contains current information on projects related to sustainability in the library sector and its carbon footprint calculations, as well as tools for promoting the sustainability of libraries. Sustainability is the topic of ongoing discussion in the Vihreä kirjasto (Green Library) Facebook group. The Library Channel offers recordings of training sessions and discussions on sustainable development.[12] In 2021, the National Library of Finland launched a **Boldly Sustainable Change** programme, which documents its journey towards carbon neutrality.[13] The most recent national environmental project of Finnish public libraries is called **Sharp and Visible Environmental Work at Public Libraries Project** (2023).

In addition, individual libraries have carried out their own environmental projects. Oulu City Library has prepared a **Sustainable Library** 2030 roadmap, and the Helsinki City Library offers a communication package on the impact of libraries and literature on climate change.

Furthermore, libraries have organised other activities on environmental themes to support ecological sustainability, such as eco-themed reading years and clothing repair workshops. Some of the libraries feature special eco-shelves with up-to-date environmental information and eco-themed fiction and non-fiction. In addition, libraries have carried out national development projects coordinated by the Helsinki City Library, such as **Youth and Environmental Awareness** (2021–22), **Youth and Environmental Emotions** (2021–22) and **Sharp and Visible Environmental Work at Public Libraries** (2023).

The Finnish Research Library Association is seeking to become organised through the FUN Finnish University Libraries' Network to promote sustainable development.[14]

12 Sustainable development and environmental work. Library Channel.
13 Sustainability and responsibility in the National Library of Finland. National Library of Finland.
14 FUN Finnish University Libraries' Network (2023). Current affairs of university libraries at the beginning of 2023. News, 20.2.2023.

Sustainability work in the library industry and industry emissions

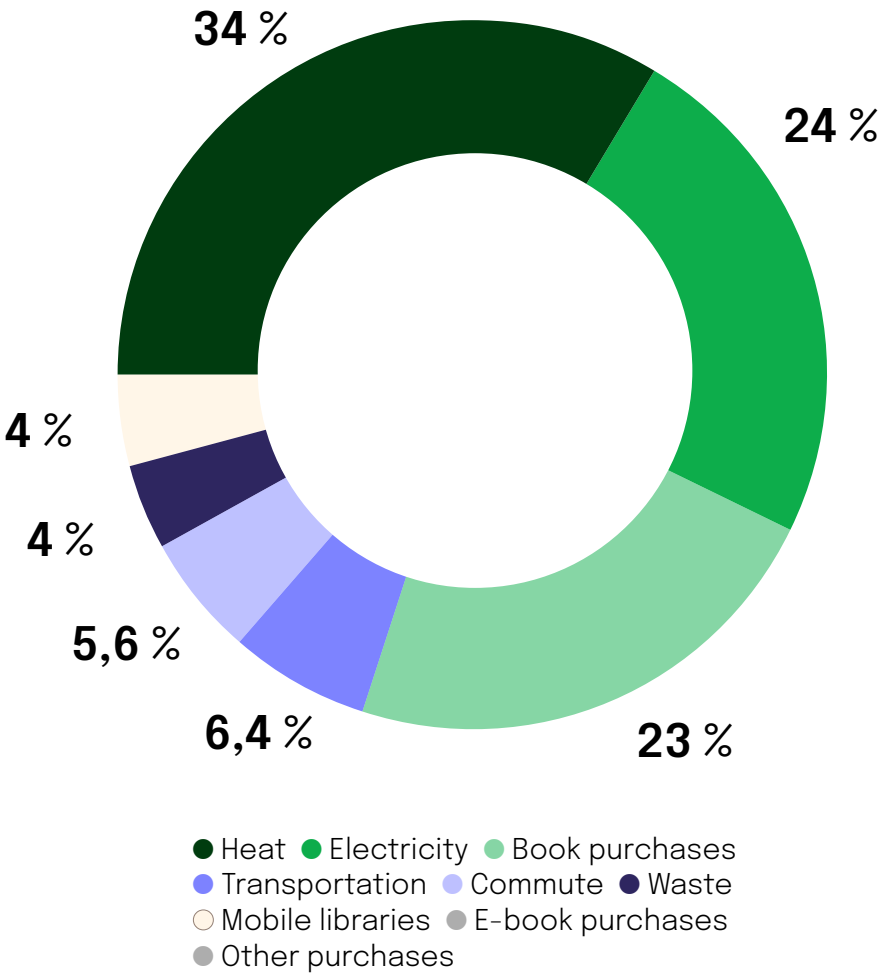
As part of the **Environmental Awareness of Public Libraries into the 2020s** project, a survey was conducted on the environmental awareness of libraries, to which 166 libraries responded. The survey showed that most libraries have an environmental programme or environmental goals, but generally speaking less attention is paid to environmental factors in libraries. The project also involved calculating the carbon footprint of 13 libraries. These measurements showed that the climate emissions of public libraries are largely (60%) made up of building emissions. It should be pointed out that municipalities are responsible for library buildings. Books and other acquisitions account for 25% of the libraries' carbon footprint. For the time being, emissions from visitor travel have been left out of the calculations, even though they are known to be a significant source of emissions.[15]

Library personnel feel that it is difficult to reduce emissions in libraries, because decisions are made elsewhere and resources for building renovation and technology improvements are scarce. Ways to help the library sector become more carbon-smart include the introduction of energy-saving solutions in properties owned by municipalities, efficient use of space, and the transition to renewable energy. That said, the only area in which libraries themselves can make a difference is collections and materials. Practical measures to promote sustainability include increasing the efficiency of material transportation, reducing unnecessary transportation, extending the life cycle and circulation of books and other materials, and reducing plastic.

Libraries can also promote ecological sustainability by focusing on their core activity, in other words by encouraging people to read materials that provide general education, and by enabling the sharing economy. Libraries could strive to increase the number of loans and improve the supply of electronic materials. They can promote the sharing economy by making communal spaces available and by lending things, such as tools. People can search the items available for lending in the nationwide library database. The selection of items available for lending is being expanded, and it currently covers a wide range of things from special tools such as 3D printers to everyday items such as sewing machines and musical instruments. To drive the sharing economy, more facilities should be offered for clothing repairs, for instance.

15 Helsinki City Library. Libraries on their way to a carbon-neutral sharing economy. Positive Impact Finland Oy. 2021.

Total carbon footprint
of the library sector in 2019



Original diagram: Harri Sahavirta.

Environmental education in libraries

The objective of **The Environmental Awareness of Public Libraries into the 2020s** research and training project managed by Helsinki City Libraries and funded by the Ministry of Education and Culture was to promote environmental awareness, carbon neutrality and the sharing economy in libraries. More than 100 book clubs were set up around Finland within the framework of the **Climate Book Club** project organised in 2021 in cooperation with Greenpeace, the Finnish Reading Center, the Finnish Library Association, the Martha Association and MLL Uusimaa.[16]

16 Climate Book Club.

Best practices in the library sector

- Green Library is a concept launched by the International Federation of Library Associations and Institutions IFLA, which includes a list of measures.[17]
- In municipal and city libraries, funding comes from the Regional State Administrative Agency, which means funding criteria do not include environmental criteria. Including environmental criteria in funding criteria would accelerate the adoption of sustainable practices in the library sector.[18]
- To launch joint environmental efforts in all libraries, an umbrella structure is required in which an appointed team would be responsible for getting the work started.
- Libraries should provide regular and accessible environmental education.
- Libraries need concrete guidelines on ecological sustainability and on ways of taking sustainability into account in their activities.
- Measurable themes and standards should be created for libraries that would allow their implementation to be openly assessed. The sum index model of the National Library of Finland could be taken into account when developing a model for such assessment.[19]
- How can the environmental work of libraries be put into a positive context, and how can young people be given an opportunity and room for advocacy, discussion and reflection?
- How can we transition to positive news and a positive future outlook – how does environmental awareness fit in with the values you want to uphold?

17 IFLA. What is a Green Library?
18 Anni Valajärvi. Mitigation of climate change and carbon neutrality. Ministry of Education and Culture. 11.12.2020.
19 National Library. The library as a promoter of democracy – The sum index as a tool for library management. 27.1.2023.

8.5 Visual arts

Biodiversity loss, the climate crisis and the relationship between humans and other species have been extensively contemplated in visual arts for more than a decade.

Fine art professionals and practitioners in Finland are often progressive in their sustainability thinking, and the environmental crisis is generally understood to be something that affects the entire sector's operating conditions and changes the requirements for the creative process in this changing world. Discussion regarding sustainability conducted in an international context must be mindful of regional disparities, in other words the different challenges of the global north and the global south, and the different local solutions.

In the visual arts sector, travel is the largest source of emissions. The sector is becoming increasingly international with major international events such as biennials and fairs. Other sources include visitor travel, exhibitions and artwork materials.

The role of the visual arts as an accelerator of the social sustainability transition

When envisioning a role for art as an accelerator of the sustainability transition, actions that immediately spring to mind include bringing environmental and natural sciences and art together, questioning prevailing ideologies and improving social dialogue. The environmental crisis should be understood as a long-lasting crisis that threatens human existence. Therefore, from the sustainability transition perspective the key question is how to bring about a profound change that affects different areas of society and extends to people's values and lifestyles. Art should be seen as one of these areas of society. Artmaking practices must embrace sustainability; this requires identifying and giving up ecologically unsustainable practices.

To promote sustainability, the visual arts sector needs to create carbon footprint calculators and environmental programmes, but it also needs more comprehensive discussion of ecological sustainability. It would be essential to identify and understand the interplay between the consequences of our actions, the values espoused in the sector's activities, and the importance of driving the sustainability transition, and to recognise the need to base all activities on ecosocial education. Likewise, it would be essential to enable parallel processes: both the introduction of carbon footprint calculators and environmental programmes and encouraging new ways of thinking.

Those who participated in the LuoTo workshops in the spring of 2023 felt that the need to promote ecological sustainability at the expense of artistic freedom could sometimes be regarded as a threat, accompanied by fears and prejudices about losing artistic freedom. Some felt that the intrinsic value of art would be under threat if the sustainability of artmaking was scrutinised or if restrictions were placed on the artistic practices and procedures. However, art is always a part of social and cultural change, not separate. Art has always been about exploring the future and searching for meaning. Demanding that the visual art professionals adopt more sustainable operating models in the future in no way poses a threat to the freedom of artistic expression.

Sustainability projects and key players in the visual arts sector

Foundations, artist residencies, museums, art organisations and individual artists are actively engaged in sustainability work in the visual arts sector. To promote sustainability across the sector, visual arts organisations, educational organisations, financiers and other players have formed the **Sustainable Visual Arts Network** that meets a few times a year. Key ongoing sustainability projects in the sector include the **Green Palette** project[1] launched in spring 2023, and the **carbon footprint calculator for public works of art**[2] developed by Turku University of Applied Sciences. Both produce concrete tools for the sector's players for planning their environmental work and calculating their carbon footprint.

Art organisations

The challenges faced by arts organisations in sustainability work essentially stem from the lack of resources. Small human resources, lack of environmental expertise and lack of funding complicate or slow down the adoption of more sustainable practices. At the same time, fierce competition for funding and the need to seek international connections and visibility are in stark contrast with the requirement for a slower, more ecological approach to artistic work that involves less travel and fewer material resources. Sources of emission from international cooperation should be identified, but at the same time novel forms of international cooperation should be created based on sustainable practices.

Artist residencies

In artist residencies, travel generates emissions and has a harmful impact on nature. Other issues raised include the condition of residency apartments and energy solutions. However, it could be argued that long-term residencies are a more sustainable choice for international cooperation than work focusing on short-lived exhibitions and productions.

In order to reduce the emissions caused by travel, attention should be paid to the residency organisations and how they profile applications and operations, and how they choose to spend their annual carbon budgets. Low-emission travel by land should be prioritised when travelling in Europe, opportunities for online artist residencies should be explored, and longer residencies of several months should be offered to long-distance travellers. The residency organisation can play a significant role in reducing travel emissions by offering advice and financial support for slower travel.

1 A new toolkit for more sustainable practices in contemporary art - Frame Contemporary Art Finland (frame-finland.fi)
2 The environmental calculator for public works of art

Museums

In museums, sources of environmental impacts include buildings, visitor travel, artwork transportation, and construction of exhibitions. Buildings generally account for the biggest emissions as museum collections need to be stored at a certain humidity and temperature. Museums are rarely the owners of the museum buildings, which is why they often have limited decision-making power over the buildings they use. This effectively stops them from transitioning to more sustainable energy solutions.

The Green Palette – a customised environmental tool for contemporary art professionals

The **Green Palette** project, launched in the spring of 2023 by thirteen Finnish fine arts organisations, is the most important ongoing sustainability project that creates tools for ecologically more sustainable production and exhibition practices in the contemporary art sector. The project will develop new, more sustainable models for artwork production, workspaces, exhibition installation, and dismantling, as well as travel and logistics. The project involves launching a digital platform containing tools tailored to the needs of contemporary art professionals to assess and reduce their environmental impact.

The two-year project has received support from the Ministry of Education and Culture in Finland for the renewal of the cultural and creative sectors. Participants include some of the key players in contemporary art and art education in Finland: Frame Contemporary Art Finland, the Mustarinda Association, Kunsthalle Helsinki, the Artists' Association of Finland, the Academy of Fine Arts of Uniarts Helsinki, and the Arts Academy of Turku University of Applied Sciences. Other expert partners include EMMA – Espoo Museum of Modern Art, HIAP – Helsinki International Artist Programme, IHME Helsinki, the Finnish National Gallery, Finnish Museums Association, Pro Artibus Foundation and the Finnish Artists' Studio Foundation. The Green Palette project is coordinated by Saara Korpela.

Networking is the most effective way to promote ecological sustainability in contemporary art

A survey conducted by the Green Palette project in spring 2023 showed that the most important measures to promote sustainability, according to two-thirds of the professionals working in the visual arts sector, included networking, cooperation between contemporary art professionals and building a stronger knowledge base. Other key measures to accelerate the sector's sustainability transition included reducing the emissions from travel and transport and ensuring the financial sustainability of artists.

More extensive network development needs were identified during the LuoTo project workshops conducted in the spring of 2023. The participants considered it particularly valuable to share best sustainability practices, to organise open network meetings, and to create a discussion forum for all sector participants where they could discuss, exchange ideas and share information about measures currently in place. They also called for access to sustainability project portfolios so that ongoing, future and past projects striving to increase the sector's ecological sustainability would be easy to find. In terms of project continuity, it would be important to increase communication between the sector's players and to make more efficient use of resources, for example by jointly recruiting an eco-coordinator to work for multiple organisations. Participants expressed their wish for major players to assume a strong role in promoting the sector's sustainability work and to openly share best practices with smaller players. Finnish residence organisations' open morning coffee network, where information and experiences are shared at a low threshold, including the insights of the organisations' sustainability work, is a good example of the kind of informal peer network the participants called for.

IHME Helsinki sets an example on how to share best practices. The agency has been sharing lessons learned about ecologically sustainable art institution practices in its **Ecoblog** since 2019 and in the **Imagine the Future Now** blog since 2023. In addition, the ihmehelsinki.fi website contains a wealth of other related content.[3]

From carbon footprint calculators to nature and material footprints

There are two projects currently ongoing in which carbon footprint calculators for the visual arts sector are being developed. The carbon footprint calculator for public works of art produced by Turku University of Applied Sciences and published in September 2023 helps to calculate the carbon footprint of individual exhibitions.

In the Green Palette project, development work on a carbon footprint calculator has only just begun. Once available, the calculator will also take into account other environmental effects. Development work will draw on previous carbon footprint calculators, such as the music industry toolkit developed in the KEMUT project, and the tourism sector's calculator. According to a report produced in connection with the Green Palette project, the sector's players said that more than anything they need tools and skills to be able to calculate their nature footprint, to compare the emissions caused by the different models available, and to calculate their material footprint.

Participants of the LuoTo workshops in spring 2023 noted that to use the existing carbon footprint calculators, software and technical skills are required that not all professionals in the sector have. According to the Green Palette project report, one third of the sector's players consider it more

3 https://ihmehelsinki.fi/ihme-blogit-ja-podcastit/

important to explore ways in which artistic activity could stimulate discussion and raise questions about the core issues of the ecological crisis.

Carbon footprint calculators and environmental impact assessment help to build an outline that is useful when starting environmental work. By calculating their carbon footprint and material footprint, organisations can identify the biggest sources of emissions in their activities that need to be addressed, and to identify the most difficult areas where emissions are to be reversed. There has been a clearly identified need in the sector for a reliable, easy-to-use calculator and guidebook for environmental work tailored to the needs of the visual arts industry. The development projects currently underway strive to meet this need.

Circular economy services to promote sustainability work

The LuoTo preliminary report (2022) identified a need to provide circular economy services to visual arts professionals, such as an opportunity to borrow or buy used materials.[4] Well-working circular economy solutions could reduce the consumption of natural resources and enable more efficient use of resources. According to the Green Palette project report (2023), contemporary art professionals mainly needed information about the environmental impact of transportation, freight, mailing and packaging materials; the reuse and recycling of materials and equipment; the environmental effects of the materials and methods used to create a work of art, and the carbon footprint of digitalisation.

Information was also needed on how to sustainably plan and curate an exhibition, and on ways of incorporating more circular economy thinking in the exhibition processes. These needs are addressed on the digital platform that is being built as part of the Green Palette project. It contains tools tailored to the needs of contemporary art professionals to assess and reduce their environmental impact.

Challenges identified in sustainability work in the visual arts sector

Lack of human resources

In the LuoTo workshops, the lack of human resources and lack of competence were identified as the biggest obstacles to organisations' green transition. In small organisations, personnel spend their working hours performing their core duties, and there is little or no time for preparing an environmental programme, calculating the carbon footprint, or tracking operations. Organisations need funding to recruit personnel for environmental work.

4 LuoTo preliminary report: Creative industries in search of sustainability (aalto.fi)

It should also be noted that sustainability work is not to be considered additional work to be carried out by existing personnel, but rather as something that has been missing from core activities and could be addressed with resourcing. At the same time, however, it is important to recognise that sustainability must be embedded in everyone's job description and it cannot be outsourced to one person, such as an eco-coordinator. Management support for the sustainability transition is critically important; this allows sustainability to become the foundation of operations from planning to execution. The question should also be raised whether the additional funds required for environmental work should come from sources other than art funding. Competition for art funding is fierce, and the limited funds available should not be the only source for financing the sector's green transition.

Lack of expertise

Some visual arts professionals feel that they lack sufficient expertise to manage complex environmental issues. They expressed the need for support from environmental and sustainability science professionals to coordinate ecological sustainability issues. To support a comprehensive sustainability transition, the project steering group or Board of Directors should include a specialist in environmental affairs or science. However, the lack of personal expertise was not considered an obstacle, if additional resources were allocated for acquiring the necessary expertise to support sustainability action.

In many cases, artists lack information on how to use materials in a sustainable and climate-friendly way (more than just calculating the carbon footprint), while taking into account the requirements of museums and collections in terms of sensitivity to light, the size of transport boxes, etc. Continuing education on materials and their sustainable use is considered important and it should be made available to the all professionals and practitioners in the sector, for example through artist societies. Exhibition organisers also play a central role in creating more sustainable operating models. Applications, contracts and instructions should always contain information on where to find carbon footprint calculators and how to use them, and general information on more sustainable material choices.

Furthermore, museums and other exhibition organisers could help artists to be more sustainable by providing information about the materials and transport options available in the area. It is unrealistic to make assumptions and wishes about more sustainable artwork without offering artists any guidelines on more sustainable practices and materials.

New and more sustainable practices in the visual arts sector

A systemic sustainability transition requires that we adapt our thinking and values to ecocrisis conditions, and a sustainable change in operating cultures requires a re-examination of motives and values.

A re-examination of current practices should question the rationale of encouraging artists to constantly create something new and instead focus on social sustainability, in other words safeguarding a decent livelihood for artists and ensuring their well-being. Art funding models should be revised to support long-term work and not just the creation of new pieces. To support a more sustainable working culture, exhibitions and the duration of productions should be extended, all the while ensuring that the decreasing number of exhibitions does not lead to inequality between artists.

The role of artist organisations as the middleman between artists, audiences, financiers and other industry organisations whose task is to bring people together, provide guidelines and lead shared learning experiences is regarded as a strength. In the LuoTo workshops in spring 2023, several participants said that artist organisations should be the unifying force that leads the environmental work in the visual arts sector, driving the sustainability transition in a relatively fragmented sector. Sufficient funding should be allocated to artist organisations to strengthen their role and their ability to act as a unifying body.

Efforts to ameliorate the social and economic sustainability of the visual arts sector involve key structural issues linked to sustainability. Focus on longer-term artistic work and the continuity of funding would improve the opportunities of visual artists to actively pursue sustainability.

Sustainability transition of visual arts organisations

The entire organisation should commit to promoting the sustainability transition. This goal should be so deeply ingrained in the organisation's activities that it permeates all levels of the organisation. The current system of having to rely on project funding leads to short-sightedness and a rapid turnover of personnel, which is why there is no time for skills and competence to accumulate in the organisation's basic structures. A systematic approach and organisational stability are required to drive the sustainability transition, as well as training opportunities for personnel, and emphasis on sustainability skills when recruiting new employees to ensure continuity. Moreover, it would be important to make sure every employee knows the basics of ecological sustainability. For instance, everyone should be familiar with the organisation's environmental strategy and travel policy. Good basic tools for an organisation's sustainability work include the EcoCompass or other environmental certificates, which help to get started with environmental work.

When creating a new, more sustainable organisational culture, it is important to identify existing skills and needs, and offer employees the opportunity for continuous competence development. Since the same people often work in several associations in the visual arts sector, and due to limited resources there being currently no time for competence building, the need for free sustainability training customised for the visual arts sector was identified as a key development measure in the LuoTo workshops. This need will be addressed in the LuoTo follow-up project in 2024–2025.

Travel and transport

International activities require travel, and the current funding models for travel expenses in the arts sector do not support slow travel, with a few exceptions.[5] The travel guidelines and travel strategy for state employees make slow travel a viable option mainly for trips under 500 kilometres.[6]

The most effective ways to reduce emissions from travel are:

- reduce air travel to a minimum
- replace in-person meetings with virtual meetings
- replace air travel with low-emission modes of travel (public transport)
- financial support for slow travel

Concrete instructions for travel by land and route planning could lower the threshold for slow travel and increase the popularity of low-emission travel. A case in point is the slow travel website compiled by HIAP – Helsinki International Artist Programme hiap.fi/ecotravel, which serves a wide range of users in the visual arts sector and beyond.

HIAP, Mustarinda and Saari Residence artist residencies are groundbreaking organisations that have integrated slow travel into the residency and artistic work, and have revised the travel practices of their own personnel. In addition, IHME Helsinki has been able to achieve a significant reduction in the carbon footprint of travel in its art productions. Based on previous experience, artists applying for Kone Foundation's Saari Residence have considered the support for slow travel a major attraction. The support has also allowed artists to experiment with and adopt new, low-emission forms of travel as part of their artistic activity.

To reduce the carbon footprint generated by the transportation of artwork and artist mobility, the need for travel can be reduced by better and optimised route planning and by increasing the number of copies available for exhibitions. The most effective ways to reduce emissions from visitor travel are cooperation with public transport companies, coordinated shuttle buses to events, encouraging cycling and walking, and organising events at venues accessible by public transport. Above all, it is important to choose a location accessible to visitors using low-emission modes of travel and transport.

5 Ecologically sustainable residency - Kone Foundation (koneensaatio.fi)
6 Strategy for Travel by State Employees. Well-Considered, Sustainable and Safe Travel - Valto (valtioneuvosto.fi)

Communication

Lack of communication remains the core problem for sustainability work in the visual arts sector. Even ambitious, long-term sustainability projects remain hidden inside organisations if they are not properly communicated. In some cases, failure to adequately communicate about environmental work is caused by a lack of expertise. People feel they lack the skills required to communicate about environmental activities with sufficient expertise. Similarly, lack of resources and time are considered an obstacle to effective sustainability communication. Informing visitors about sustainable practices is important during productions, exhibitions and events, because clear and impactful communication that reaches the audience can significantly contribute towards pro-environmental behaviour. To increase sustainability competence within the sector, closer and more extensive communication about sustainability projects is needed to share best practices and sustainability expertise among the sector's players. Sustainability-focused communicating should also be seen as a way of supporting the cultural change that drives the sustainability transition. That said, every effort should be made to avoid greenwashing. Communication should be based on facts and appropriately scaled.

Proposals for measures to promote the sector's sustainability transition

- Build and strengthen activities within the Sustainable Visual Arts Network for sharing sustainability competence.
- Produce customised training on sustainability themes and eco-social education for industry professionals (LuoTo follow-up project 2024–2025).
- Provide easy access to information about sustainability themes (the online platform of the LuoTo follow-up project 2024–2025 and the online platform of the Green Palette project).
- Create easy-to-use tools for measuring environmental impacts (Green Palette project).
- Create services for borrowing and buying used materials and provide new circular economy solutions

Recommendations for visual arts sector financiers

- Funding should be made available for sustainability work in visual arts organisations (sustainability work as specialist role) from a funding source other than those used for art funding.
- Compliance with sustainability criteria should be consistently required of large-scale projects with a bigger environmental impact.
- Sustainability criteria should be included in the application phase, as should the screening of environmental effects by evaluators.
- The project reporting phase should include an assessment of whether sustainability criteria were met.
- Additional funding should be granted to those who adopt sustainable practices (e.g. low-emission travel).
- More funding should be allocated to slower and more sustainable artistic work and for extending the life cycle of artwork.
- Financiers should actively provide information about how the funded organisations use their funding for sustainability work, so that information about their achievements can spread throughout the sector

8.6 Museums and cultural heritage

Government Resolution for the Cultural Heritage Strategy 2023–2030 (OKM/2023/12)[1] highlights sustainability as one of the key strategic values alongside diversity and equality. For the first time in Finland, the cultural heritage strategy examines all aspects of cultural heritage comprehensively: it is everywhere and it is part of everyone's life. Cultural heritage can be tangible, intangible or digital, or it can be related to a cultural or natural environment.

The strategy's vision highlights the role of cultural heritage as a resource for society and as a factor improving the quality of people's lives: cultural heritage serves as a bridge between people and offers solutions for building a sustainable future. One of the most important values is the responsibility for preserving cultural heritage for future generations. The strategy considers the opportunities that cultural heritage offers for increasing inclusion, identifying cultural diversity and equality, and promoting sustainable development.

In its museum policy programme **Opportunities in the Museum Sector** (2018),[2] the Ministry of Education and Culture identifies social impact as one of the key tasks of museums in the future. Museums have a duty to preserve and research our cultural heritage, which makes them well equipped to actively promote eco-social education and contribute towards a more sustainable future. Efforts to enhance our living intangible cultural heritage are closely linked to measures to pursue the sustainable development goals. Work on community-driven cultural heritage has a particular impact. By highlighting the sustainable operating practices and lifestyles associated with our living cultural heritage, the transformative power of culture can be used to foster the sustainability transition in society. The cultural heritage of an ecologically sustainable future is being created now.

While being the core activities of museums, recording, researching, exhibiting and sharing information about our cultural heritage in many ways support our efforts to reach the sustainable development goals. Museums, cultural centres and the children's culture sector have the power to influence the attitudes of large groups of people and lead the way in sustainability operations by creating new, carbon-neutral practices and by providing education about environmental matters and cultural heritage.

By showing appreciation for traditional knowledge and traditional materials, museums can bring the sustainable development goals within our reach and offer alternatives to the consumer culture. By encouraging active agency in their communities, museums can turn the sustainability know-how embodied in our living cultural heritage into a driver of cultural change and turn museums into places where people gather to build a more sustainable future.

Sustainability work and sustainability projects carried out by museums

Museums have made great progress in their sustainability work in the 2020s. The museum industry players have actively measured their carbon footprint, introduced environmental systems, launched development projects and actively organised continuing education for their staff. As a result of an exchange of views between the sector's international players, new operating models have been created and best practices have been brought to the fore.[3]

In Finland, the State Treasury recommends that all ministries, central government agencies and institutions prepare a sustainability report annually. In these reports, the organisations describe how their core activities and competences can contribute towards the achievement

1 https://julkaisut.valtioneuvosto.fi/handle/10024/164637
2 Opportunities in the Museum Sector - Museum Policy Programme 2030 of the Ministry of Education and Culture. Publications of the Ministry of Education and Culture, Finland 2018:11
3 McGhie. (2022). Understanding the Sustainable Development Goals and targets: a guide for galleries, libraries, archives and museums. Curating Tomorrow.
4 Kanerva, Jakola ja Toiviainen. (2023). Cooperation to build a sustainable future. Summary and perspectives of the central government's sustainability reports from 2022. State Treasury publications.

of the 3–5 UN SDGs they have identified as essential (carbon handprint) and how they manage the direct environmental impacts of their activities (carbon footprint). The first reports were prepared in 2021 and the next ones in 2022, at which point 56 organisations submitted a report.[4]

In recent years, a project entitled **Sustainable Agencies** has given rise to inter-agency cooperation. In a joint project of the Finnish Heritage Agency, the National Archives of Finland, the Governing Body of Suomenlinna and the Arts Promotion Centre Finland, the agencies analysed their role as drivers of sustainable development and took steps to enhance it.

LIVIND – Creative and living cultural heritage as a resource for the Northern Dimension region is a project coordinated by the Finnish Heritage Agency. Nine countries are involved in the project which identifies good practices for sustainably using our living intangible cultural heritage in areas such as tourism and services, and making use of it in various practices and procedures between 2021–2024. The LIVIND project includes online events, workshops, pilot projects and a research section. The results obtained during the project will be published online.

The Finnish **EcoCompass** environmental system developed by the Finnish Association for Nature Conservation is used by the Finnish National Gallery, Amos Rex, EMMA and HAM, to name a few. Aboa Vetus Ars Nova, The Museum Centre of Turku, Turku Art Museum and the museums of the Åbo Akademi Foundation are currently building their environmental system and will apply for EcoCompass certification this autumn. The EcoCompass environmental system is based on the principle of continuous improvement and includes goals and measures for reducing environmental impacts. The environmental programme of an EcoCompass certified organisation is updated annually and the goals are revised at least every three years.

Environmental impact calculations covering the entire museum industry have not been prepared, although several individual museums have calculated their carbon footprint. In museums, sources of environmental impacts include buildings, visitor and employee travel, artwork transportation, and construction of exhibitions. Much of the carbon footprint comes from the energy used in buildings; this is because museum collections require special environmental conditions. Museums are rarely the owners of the museum buildings, which is why they often have limited power over energy efficiency in the buildings they use and therefore limited opportunities to cut emissions.

In 2020, the Finnish Museums Association organised a seven-month training course on sustainable development called **Words into eco-action** for its members and established a sustainable development working group for the FMA. To follow up on this work, the FMA published a sustainable development action plan in 2020. The FMA calculated its carbon footprint in 2019 and targeted its carbon footprint reduction measures at the largest sources of emissions, namely travel and event catering. The FMA's training programme includes at least one event focusing on sustainable development every year. In addition, the FMA aims to raise awareness of

sustainability in its communications. The FMA has taken action to ensure its employees' commitment to sustainability and has supported employee initiatives. These measures, together with the inclusion of ecological sustainability in the organisation's strategy, have helped to firmly establish sustainability ethos in the entire organisation

Finnish National Gallery launched its environmental programme, **Green Handprint**, in 2020. The programme aims to make sustainability and the circular economy a permanent feature of all the gallery's activities and help it become carbon neutral by 2035. Personnel were actively involved in the sustainability work of the Finnish National Gallery by developing more ecologically sustainable practices and procedures.

Other Finnish museums have followed suit and have used the Green Handprint workshops, launched by the FNG, to build better sustainability practices. In the Green Footsteps workshops, participants explore opportunities for sustainable development and based on their findings prepare an environmental work plan for the museum. One of the biggest upsides of the workshops is that the work plans prepared are put into practice in museums. Between 2019–2022 the Finnish National Gallery shared the Green Handprint workshop concept with approximately 2,600 museum professionals in Finland and abroad.

The **Climate Promise of Museums in Southwest Finland**[5] is a project launched in 2023, during which 13 professionally maintained museums in Southwest Finland will develop their activities and critically examine their operating environment from the perspective of ecological sustainability. The project has received funding from the Finnish Heritage Agency.

During the project, each museum will implement at least one measure, either aimed at reducing the climate load (carbon footprint) or increasing the positive environmental impact (ecological handprint). The objective of the project is to help museums adopt new, ecologically more sustainable operating methods, as well as share information and operating models not only for the museums involved in the project but also for wider use. Other key objectives include expanding the museums' collaboration networks and utilising the expertise gained during the project to promote the environmental work of all museums. The participating museums will also increase the climate knowledge base of the region's residents and strengthen their ability to navigate and mitigate climate change.

5 The Climate Promise of Museums in Southwest Finland. Turku.

The carbon footprint of Museums of Lappeenranta was calculated in 2021 using 2020 data. The City of Lappeenranta won the **European Green Leaf Award** and was able to provide financial support for the carbon footprint calculation. Museums of Lappeenranta was one of the first museums in Finland to calculate their footprint.

With financial support, the carbon footprint calculation was outsourced to professionals. The calculation was carried out by LCA Consulting Oy according to Greenhouse Gas (GHG) Protocol-compliant standards.[6]

6 Museums of Lappeenranta were the first museums in Finland to calculate their carbon footprint. City of Lappeenranta. 18.11.2021

Proposals for measures to promote the sector's sustainability transition

- Develop repair concepts that take into account decarbonisation goals, the circular economy and the special characteristics of museum buildings and cultural heritage sites.
- Take systematic action in the museum and cultural heritage sector to curb and adapt to climate change and embrace circular economy solutions in activities.
- Assess impacts from the cultural heritage perspective when planning climate policy measures.
- Monitor the effects of climate change on intangible and tangible cultural heritage and the cultural environment.
- Improve the protection of archaeological cultural heritage and the preservation of the built cultural environment through better sustainable management of heritage sites and better monitoring of the effects of climate change to ensure weather risks are taken into account.
- Increase intersectoral cooperation between nature conservation and cultural heritage protection with joint, proactive plans and better interoperability of information resources.
- Communicate ecological themes to the visitors of museums and cultural heritage sites to promote cultural change.
- Pay attention to ecological choices in museum shops and cultural heritage sites.

8.7 Textile and fashion industry

An international industry with a complex environmental footprint and EU-driven regulation. Solutions adopted in the industry will extensively support the sustainability transition of other creative fields.

The textile and fashion industry is a substantial sector in terms of scale. Clothing is the world's second largest consumer market after packaged foods. In 2021, people spent USD 1,434 billion on clothing and footwear worldwide. There are approximately 1,500 Finnish textile and clothing companies which employ about 4,700 people in total and have a combined turnover of over EUR 1 billion.[1]

The industry's sustainability challenges: a huge climate and environmental footprint

The textile and fashion industry has a significant and growing carbon footprint, which is estimated to account for 4–10% of all global greenhouse emissions. Most emissions are generated in the textile producing countries. According to McKinsey's 2020 report, the share of production from materials to collection is 71%. Transport is estimated to represent 3–10% of textile emissions. Consequently, the energy forms used in the producing countries and the volume of production carry significant weight in terms of reducing the textile industry's emissions. The origin and quality of the fibre used as raw material and material efficiency affect an individual company's carbon footprint, as the footprint grows the more manufacturing steps the fabric requires. Other things to factor in include the geographical location where the different life cycle stages take place, sources of energy used in different countries, modes and distances of transport, the service life of the textile product and the repairability of a product.

The core problem in the textile industry is the huge production and consumption volume and the short product life cycle. At present, material turns into waste at a very fast pace and 20–30% of the products never even end up for sale. Some 35% of the microplastics in the oceans are caused by the fashion industry, and the industry's chemicals are another major environmental hazard. In the EU, 12.6 million tonnes of textile waste is generated per year. About 12 kilograms of clothing and footwear waste is generated per year per person. However, only slightly more than 20% of the textile waste is collected for reuse or recycled, and the rest is burnt for energy or disposed of in accordance with the EU textile waste legislation. Since the beginning of 2016, it has been prohibited to bring any textile waste to landfills in the EU.

EU regulation: from Ecolabel and waste directives to digital product passport and producer responsibility

The EU regulates the textile industry from several different perspectives. The EU Ecolabel is already available to producers. In addition, the EU's new strategy addresses harms such as hazardous chemicals. The goal of the proposed amendment to the EU's textile waste directive is to improve the management of textile waste in accordance with the waste hierarchy. It also implements the polluter pays principle with extended producer responsibility. According to the Waste Act, textile waste must be collected separately from other waste if possible. As part of its circular economy plan, the European Commission has drawn up the European Green Deal and the Circular Economy Action Plan. The aim of the EU strategy for sustainable and circular textiles[2] is to make

1 The textile and fashion industry in Europe. Finnish Textile & Fashion.
2 EU strategy for sustainable and circular textiles. European Commission.

textiles more sustainable, repairable, reusable and recyclable, to tackle fast fashion and ultra-fast fashion, and accelerate the sector's innovations.

In spring 2022, the European Commission published a **Circular Economy Package**[3] aimed at promoting the circular economy. The package includes a sustainable products initiative and a textile strategy. As part of the Circular Economy Package, a digital product passport (DPP) is in the pipeline. The passport is a compilation of product-related information which must be electronically accessible to the consumer via a data carrier in the product, such as a barcode. The purpose of a digital product passport is to provide information to industry players and consumers about product recyclability, materials used and sustainability. It is hoped that the digital product passport will make it easier for consumers to make sustainable choices.

The European Commission intends to require a digital product passport for product groups with the greatest environmental impact. The scope of eco-design is being expanded beyond energy-related products to extend the application of the eco-design framework to as many types of products as possible. Textiles are among the first product categories to which the eco-design framework and digital product passport are being extended, because textile consumption in Europe causes significant climate and environmental effects, water consumption and a high chemical load. The Nordic trade and environmental sectors have joined forces and proactively begun to prepare for the practical implementation of the digital product passport when the regulation comes into force.[4]

Upon entry into force, the European Commission's proposal in summer 2023 on extended producer responsibility for textiles would mean that textile producers' responsibility covers the entire product life cycle. According to the proposal, producer responsibility would apply to household clothing, accessories, footwear and home textiles. Similarly, the Commission's proposal suggests that producers would be responsible for the collection, transport and sorting of products for reuse and recycling as well as waste management.

In June, the European Commission published a Transition Pathway for the Textile Ecosystem, which has been jointly developed with the textile industry. The report includes 50 actions critical for the EU textiles ecosystem's green and digital transition, enhancing its resilience and competitiveness. The Transition Pathway also lists the commitments and actions required of the EU, the member states and the industry to support the transition.[5]

Although the EU has strong political tools at its disposal to promote the sustainability transition, the EU recognises a great need for a broader cultural change, as demonstrated by the **ReSet the Trend** campaign, which encourages people to repair textiles.[6] Repairing textiles and increasing the number of times they are used are the single most effective eco actions. Making clothing repair services and supplies more readily available to consumers and teaching people how to repair clothes is key to changing consumer culture.

3 Making sustainable products the norm. European Commission. 2022.
4 Nordic cooperation for the introduction of the Digital Product Passport launched. GS1 Finland. 10.5.2023.
5 The EU Commission calls for commitment from companies and research and educational institutions for the implementation of the Transition Pathway for the Textile Ecosystem. Finnish Textile & Fashion. 12.09.2023
6 ReSet theTrend. European Commission.

Sustainability work in the textile industry in Finland

The textile industry has actively built networks in Finland, created guidance and provided support and training within the industry. Sustainability challenges have been identified in the **Finland as a forerunner in sustainable and knowledge-based textile Industry – Roadmap for 2035.**[7] The roadmap explores current themes and trends in the textile industry, formulates a vision for 2035, and identifies obstacles and enablers of change. The roadmap proposes measures such as a futureproof loop pilot and an ecosystem built around it, as well as the **Designed for sustainability** operating model to be translated later into a **Designed for sustainability** standard.

The final report of Finnish Textile & Fashion's **Carbon-neutral textile industry roadmap** project identifies key solutions from the industry players' perspective. These include a textile fibre guide and the textile industry's own **Carbon neutral textile industry 2035 commitment**, which will be a concrete tool for textile companies, providing access to a carbon footprint calculator tailored to the industry, regular training, advice and current information. In addition, the sector has its own **Responsibility and the Circular Economy** advocacy group.

The **FINIX** project,[8] currently under way at Aalto University, researches sustainable textiles, collects research data, organises events and workshops, and builds networks of the fashion industry's sustainable players. FINIX has developed the **Shades of Green** instrument to help with sustainability communication to consumers, making it easier for them to understand and compare the sustainability aspects of textile and fashion items.

The Carbon neutral textile industry 2035 commitment serves as a concrete tool for companies in the textile industry to curb climate change. Companies striving for carbon neutrality undertake to calculate their carbon footprint, pursue decarbonisation in operations, include compensation in their climate work, and communicate and deploy carbon neutrality across their value chains. Joining the commitment involves a fee.[9]

7 Kamppuri, Kallio, Mäkelä, Harlin (2021). Finland as a forerunner in sustainable and knowledge-based textile industry - Roadmap for 2035. VTT.
8 We need a sustainability revolution in how we make, use and dispose of textiles. FINIX.
9 Carbon neutral textile industry 2035 commitment serves as a concrete tool for companies in the textile industry to curb climate change. Finnish Textile & Fashion

New circular economy innovations in the fashion industry

Circular economy business models include product design that makes efficient use of materials, repair and maintenance services that extend the product's life cycle, and the reuse of products through second-hand selling.

Even more efficient operating models are needed for material collection and processing. At the moment, much thought is given to ways of recycling textiles without losing added value. In recycling, the value of the textile material can increase (*upcycling*) or decrease (*downcycling*). Recycling is an area in which the industry is actively looking for innovative solutions. JoutsenHackathon is an example of projects looking to identify new methods of using the side streams and waste materials in the textile industry.[10]

To increase the recycling rate, both mechanical and chemical recycling and material development work are needed. Currently the plastic contained in materials (e.g. elastane), even in small amounts, makes recycling challenging. Co-creation projects to identify more efficient material cycles for both plastic and textiles might provide a solution. Aalto University's Finix project explores avenues for a systemic change in the fashion and textile industry. Fortunately, there is light at the end of the tunnel. Finnish fibre innovations such as Infinna and Spinnova attract interest worldwide.[11] The potential of these fibres to replace cotton is remarkable, as evidenced by the fact that the fashion giant Zara has signed a cooperation agreement with Infinited Fiber.

In early 2023, separate collection of end-of-life textiles was launched throughout Finland. LSJH waste management company is responsible for the sorting of end-of-life textiles. In 2023, it is expected to process 800,000 kilos of waste textiles. These are used to make raw material yarn, new clothes, home textiles, furniture filling and insulation material.[12]

10 JoutsenHackathon. New business from the side streams of the down textile industry. BioPaavo by JAMK.
11 Ecological textile fibres from Finland - where are we now? Finnish Textile & Fashion. 16.06.2021
12 Post-consumer textiles will soon be collected everywhere in Finland - Household textile waste is already being used to make new clothes and wool yarn. Lounais-Suomen Jätehuolto.

New forms of consumption: second hand, rental and repair

The clothing industry transformation is driven by the adoption of a new kind of aesthetics, with a growing acceptance for buying and renting used and repaired clothes. Repaired or second-hand clothing is no longer considered unhygienic.

Second hand

The second-hand business has grown rapidly in Finland in recent years and is now the fastest growing retail segment. According to a survey commissioned by the Finnish Commerce Federation in 2023, approximately 60% of Finns have bought second-hand products in the past year.[13] According to international estimates, in 10 years 20% of the clothing consumers buy will be second-hand.[14] Trendy second-hand services such as Relove and Emmy have proven to be successful concepts, especially among young consumers. Peer-to-peer platforms such as tori.fi and Facebook Marketplace are also actively used. Clothing brands are chipping in with their own services, such as Alpa 2nd Hand,[15] Kaiko Rewear[16] or Papu Preloved[17].

Rental

Clothing rental companies have also sprung up in Finland, encouraging us to rethink our consumption habits. Clothing rental companies focus on domestic, sustainable design and manufacturing, and offer the opportunity to enjoy fashion through the sharing economy. Moreover, by choosing not to buy can also reduce their carbon footprint. To promote a new kind of consumer culture, clothing rental companies want to make borrowing an alternative to buying, even when it comes to everyday wear. Instead of offering one-off rentals, companies encourage people to commit to a long-term customer relationship.

For the time being, clothing rental remains a niche activity and is limited to the largest towns. Availability is also limited in terms of size, age group and gender. To become mainstream, clothing rental outlets should be more conveniently located along customers' daily travel routes, online and remote rental operations and availability need improvement, and selection should be expanded to include business wear and men's and children's clothing.

13 Finland is one of the world's leading second-hand markets. The Finnish Commerce Federation. 21.09.2023.
14 Second hand is the next megatrend Emmy.
15 Alpa 2nd hand.
16 Kaiko.
17 Papu pre-loved.

Repair

Despite the EU's stringent control measures in the textile industry, a need for a wider cultural transition in the EU has been identified and acknowledged. This could be partly explained by the ReSet the Trend campaign.[18] Changing the consumer culture to one that favours long-lasting, durable clothes and is based on repair, and recycling requires cooperation across the industry.

For most clothing brands, the big challenge lies in repair often being more expensive than buying a new product. There are currently about a dozen clothing brands in Finland that service and repair the clothes they sell, including Sasta, Reima and Joutsen. Balmuir, on the other hand, has profiled garment maintenance as a luxury service. Major fashion brands and retail chains are about to introduce clothing repair services in the next few years.[19] The textile industry has introduced repair innovations that have contributed to making repair an easy, attractive and viable alternative to buying new clothes. One of these repair innovations is FabPatch Oy's textile rub-on repair patch, which received both the Finland Chamber of Commerce's Sustainability Deed of the Year and Design from Finland's Design Deed of the Year awards in 2022.

Paramount for the consumer culture transformation is to include repair skills in arts and crafts training programmes, provide more training opportunities for repair professionals, improve the availability of repair services, and provide incentives. The rebranding of repair services requires a change of attitudes; here, other art professionals and practitioners can play a key role. By showing how repaired clothing can be desirable and interesting, costume designers for performing artists and film and AV industry productions can play a key role in creating a new normal and a new aesthetic. In addition, libraries could assume a pioneering role in the sharing economy and as places where people can repair clothes.

The existing structures should be used to offer consumers an opportunity to improve their repair skills. The Finnish Crafts Organisation, funded by the Ministry of Education and Culture, was originally established to teach people repair and restoration techniques and how to make utility items. Today, the organisation also includes regional associations, and is Finland's largest arts and crafts services network that organises courses and offers advice, guidance and teaching in different parts of Finland. The Finnish Crafts Organisation includes 15 regional associations operating in more than 80 locations. By strengthening the existing network, making use of existing locations and their skilled staff, repair training and craftsmanship skills could be taught more widely throughout the country.

18 ReSet theTrend. European Commission.
19 Helena Lappeteläinen. You can save money by repairing clothes – In the future, the seller may ask you if you'd like to buy a lifetime warranty for the garment. Yle.fi. 4.3.2023.

Information about durable textiles

Enlightened consumers and responsible subcontractors play a key role in the textile industry sustainability transition. More up-to-date and reliable information is needed in the textile industry. Aalto University's FINIX project, which is researching sustainable textiles, keeps a list of **Sustainable Textile Industry Pioneers in Finland**, providing a summary of companies in the textile industry that take sustainability into account.[20] In addition, the textile industry has its own commitment for companies committed to climate work. These companies have signed the **Carbon neutral textile industry** commitment and have committed to pursuing carbon neutrality no later than by 2035.[21]

Turku University of Applied Sciences runs Telaketju, a cooperation network that promotes the circular economy of textiles by seeking improvements in the collection, sorting and refining processes of end-of-life textiles.[22] A responsible clothing guide on the Telaketju website contains guidelines on how to inform the public or partners about ways of extending the useful life of textiles and clothing through repair and maintenance.[23]

20 Pioneers of the sustainable textile industry in Finland (list kept up to date). FINIX.
21 Included in the commitment. Finnish Textile & Fashion.
22 Telaketju aims to promote more efficient utilisation of post-consumer textiles. Telaketju.
23 Guidebook on textiles. Eco-Fellows Ltd.

Measures identified in the LuoTo workshops to promote the sustainability transition in the textile industry

Energy and carbon footprint

- Supply chains are global and fragmented, which makes them difficult to control and monitor; therefore, one solution would be to pilot new ways of local production

Design

- The product design stage should be as short as possible and take recyclability into account.
- Focus on timeless and long-lasting products.
- Prioritising recycled fibres and fibre innovations over virgin raw material while keeping in mind the intended use of the product.
- Make clothes more adaptable and repairable to extend their life. For example, allow room in children's clothes to roll up the legs, and make shoe soles repairable.

Integrating sustainability into education

- Educational institutions have a responsibility to integrate the principles of sustainable design into their curricula. Through training, designers should acquire sufficient know-how for eco-smart design that respects the principles of the circular economy. This can influence how new designers approach sustainability in their future projects.
- Expand the scope of designer training to allow them to incorporate the principles of sustainable design and production into their work more extensively. Continuing education opportunities later in their career help designers stay up to date with new sustainable design practices.

Cultural change and a new kind of aesthetics

- The creative industries on a wide front must be invited to drive the sector's cultural change. Influencers and role models in the creative sectors can make a difference in attitudes towards climate change more broadly by raising the brand value of used products, committing to wear clothes for their entire life cycle, borrowing and renting clothes, etc.
- Creative fields have the power to normalise new aesthetics. Fashion designers can make new aesthetics the norm by raising awareness of life cycle thinking. Productions in other creative sectors can bring attention to repair, and the use of repaired clothes should be highlighted in events and performances.
- To achieve cultural change, cooperation between professionals in different creative sectors is needed. Libraries can provide access

to sewing machines and instructions for repairing clothes, literature can increase our understanding of what is normal (our relationship with goods and clothes); and in film and theatre, what artists choose to wear (including gala and stage wear, etc.) can normalise the use of repaired, durable and long-lasting clothes instead of fast fashion.

The challenges of sustainability transition during the economic crisis:

- Pricing strongly affects consumer behaviour. The war in Ukraine and the subsequent energy crisis that affected the global economy has had a major impact on consumers' purchasing power. Small domestic manufacturers of sustainable fashion are suffering financial hardship, and many have had to either downsize or close their brick-and-mortar stores or discontinue operations altogether.
- Incentives are needed, such as eco tax and customs regulation to direct purchasing decisions in a more sustainable direction. In addition, efforts are needed to change attitudes in society and to encourage consumers to appreciate and opt for durable and long-lasting products.

Sustainability communication and transparency

- Companies must use open and transparent sustainability communication to allow consumers to make more informed choices. It also forces companies to take responsibility for their operations.

Encourage repair and maintenance

- One way to improve sustainability in the textile industry is to help consumers become more skilled in repairing their own clothes and other textiles. Repair fairs and workshops and better availability of repair services and products can encourage consumers to keep using their products for longer.
- Reduce the VAT rate from the current 24% to make repair services a more attractive choice.

New business models

- Circular economy and service design offer opportunities to promote sustainability. Giving more visibility to clothing rental, repair services and second-hand shops in shopping centres and retail venues helps to normalise the sharing economy and the circular economy.

Changes in legislation and financial incentives

- We need regulation that supports sustainability, such as eco taxes for fast fashion.
- Financial incentives are needed for circular economy business and for domestic production and activities in the textiles value chain.
- Promote the transparency of production processes and the sustainable use of raw materials.

Raising consumer awareness

- Actively campaign and inform consumers about the impact of extending the service lifespan of clothes on carbon footprints.
- Provide clear information about the environmental impact, carbon footprint and material footprint of products.

Cooperation and networking

- Promote cooperation across the field between companies, organisations and research institutes. Create forums for sharing best practices and experiences in how to promote sustainable fashion and design.
- Promote cooperation in recycling for textiles and plastics.
- Use recycled textiles for animal clothes and beds.

8.8 Design

Design is everywhere, in both our physical and digital environments. Goods, machines and spaces have all been designed. Design covers a large number of industries, from industrial design to visual communication design.

According to Statistics Finland, there were approximately 13,940 design companies in Finland in 2020. The design industry recorded a turnover of EUR 13.5 billion in 2020. The largest individual segment was digital design with a turnover of EUR 9.1 billion. What explains these rather sizeable figures is that they include the software and game industry and the design industry[1].

Of all creative industries, the design industry is the one that can directly contribute to the sustainability transition of other sectors. The vast majority of decisions affecting the environmental impact of products and services are made between product development and design in the design engineering stage. To extend a product's life cycle, the key decisions involve material choices, number of product parts, ease of servicing and easy recycling.

Industry players

Design Forum Finland's current mission is to help companies transition to sustainability through design. In 2022, Design Forum Finland decided that its key theme for the next three years would be "Using design and creativity to accelerate the green transition". Design Forum Finland represents Finland in the **Nordic Design Platform** project, the purpose of which is to coordinate cooperation in the Nordic design industry to accelerate the transition to sustainability.

Ornamo is an expert organisation that represents approximately 3,000 design industry professionals. According to its strategy, Ornamo's members are required to commit to sustainability and comply with professional ethical guidelines and the principles of sustainable development. In its publication **Design is a force for change in society and sustainable development, Design policy recommendations 2019–2024**, Ornamo outlined the interplay between design and sustainability, noting that the climate debate has brought forward an idea of design being all about respect for the planet, not just its inhabitants. According to the publication, sustainable design is based on eco-friendly practices such as extensive assessment of environmental impacts and carbon footprint, resource wisdom, zero waste, the circular economy, and increasing biodiversity through the sustainable use of natural resources.

Projects, events and guidebooks

The design industry has actively taken part in sustainable development projects. Design Forum Finland has been involved in sustainable development and responsible design in the **EcoDesign Circle**, **SustaiNordic** and **HerääPahvi!** projects, and developed tools for companies to facilitate their transition to circular economy business models. Many useful tools have been developed in these projects, such as the **EcoDesign Sprint Guide**. In its data bank, Design Forum Finland provides data and practical guidebooks on topics such as design for behavioural change and design as a means of increasing recyclability and inclusiveness.

Design Forum Finland is one of the main organisers of the annual **No Bullsh*t!** sustainability event for senior executives. Design Forum Finland runs the **Circular Design** pilot training programme on circular economy-based design for companies. Participants in the programme include 50 Finnish companies from various industries. The programme includes events, online workshops and a podcast series. The programme is one of the measures listed in the strategic Circular Economy Programme, implemented under the direction of the Ministry of the Environment by Design Forum Finland and Ethica Oy in partnership with VTT Technical Research Centre of Finland, Finnish Environment Institute SYKE, Sitra, Frankly Partners, Miltton and Alice Labs.

Ornamo dialogue online events provide an opportunity for continuous discussion on sustainability themes. Ornamo is one of the co-creators of the **Designer's professional ethical guidelines** in the **Professional Ethics workshops**, where sustainable development has become one of the top themes.

1 https://www.ornamo.fi/muotoiluala/

Design education studies and guides

”Design and sustainability go hand in hand” argued Aalto Design Factory’s research group in their report **Design + Sustainability 101**, which deals extensively with the social, ecological and economic sustainability of design and addresses topics related to energy, materials, labour force and business models. The report suggests that designers can contribute to the sustainability transition in a special way by balancing various overall sustainability goals and dimensions, by building bridges between people, by offering training, and by exploring alternatives and versatile solutions.[2]

KISU – The designer’s guide for circular economy design was the outcome of the KISU project carried out by the LAB University of Applied Sciences. It can be used in Finland as an educational tool, workshop material or as a guide to help designers choose sustainable materials.[3]

How design can promote the social sustainability transition

- Design allows decisions to be made at the start of the process that affect the product’s service life, servicing and recycling.
- The methods used in design could be extended to other sectors
- to create action-oriented knowledge quickly, and to test solutions and run experiments in real life.
- The methods used in design are suitable for future-oriented decision-making in uncertain conditions.

“The mission of design should be a pursuit of the 1.5-degree lifestyle, which means a quantum leap from individual sustainable products towards designing sustainable lifestyles. It means a growing role for design, which should be at the core of processes. Transition to a sustainable, 1.5-degree lifestyle breaks the historical link between design and the need to create a material heaven. It also makes digitality, service design and material circulation the new core competences.”[4]

2 https://designfactory.aalto.fi/designsustainability/
3 https://urn.fi/URN:ISBN:978-951-827-358-8
4 Otso Sillanaukee and Petteri Lillberg / Design Forum Finland Blog 9.8.2022 https://designforum.fi/blogit/15-asteen-elama-muotoilu-voi-katkaista-napanuoran-tavarataivaan-kanssa/

8.9 Music

Sustainable live music projects involve groundbreaking sustainability work in the creative sector, with their influence extending far beyond live music and accelerating the green transition of other creative industries, too. The industry is also starting to take measures to increase the ecological sustainability of music production and distribution. These sustainability projects have raised awareness of the role the music industry plays as an influencer, and of the industry's unique ability to reach large audiences.

While the music industry is not the biggest producer of emissions, the industry's cultural influence is significant. The music industry interacts with several other creative fields, such as the event industry, performing arts, the audiovisual industry and fashion.

Sustainability measures taken in the music industry can drive the transition to sustainability in other sectors, and conversely, measures taken by other players determine whether carbon-neutral event venues with good public transport connections are available for the music industry. Being a high-profile industry, the music sector could assume a bigger role in accelerating the green transition in society more broadly.

The total value of the Finnish music industry was EUR 1.25 billion in 2022. This includes the core revenue of the music industry – live music, copyrights and recordings – grants, a total of EUR 791 million, and music education, EUR 455 million. The live music segment employs more than 17,000 people. There are about 3,000 freelance musicians in Finland and about 3,800 who work in music education.[1]

The music industry's biggest emissions are caused by travel and transport, acquisitions and energy consumption. Many organisations have implemented major improvements with respect to logistics, waste management and equipment life cycles. There are still challenges to tackle, especially in terms of energy consumption and audience logistics.

Big artists and more sustainable concerts have the power to drive the sustainability transition

Big artists can act as role models for their audience, and they also have the power to promote sustainable practices within the industry. Just as the 1980s and 90s were the heyday of a consumption-based lifestyle which was widely admired and imitated, the 2020s could go down in history as the era of a more sustainable culture based on ecologically sustainable lifestyles.

Record companies and gig organisers also play a key role in making the sector's practices more sustainable. Recognition and reputation of gig venues play a major role in terms of the conditions artists are willing to accept to perform there. In Finland, extremely popular venues such as the Tavastia club in Helsinki have the power to change the culture and promote sustainability. At the beginning of 2020, Tavastia launched its **Hall of Nature** sustainability project.[2]

Concerts currently involve a huge amount of technology, and the production budgets of festivals are growing as organisers strive to meet the demands for more and bigger stages, more sets and more technology. In the festival scene, it sometimes feels like the "more is more" approach to technology is leaving music on the sidelines and undermining the audience. This problem does not exist in classical music concerts, because the way music is performed requires established aesthetics and structure, close contact with the conductor and other musicians, and places requirements on lighting. In the classical music segment, carbon footprint is largely generated by travel and transport, and the energy consumption of large concert halls. The way concert tours are organised, particularly in terms of route planning and travel modes, is important.

Tours are a traditional operating model in both the classical and popular music segments. Tours involve major sustainability challenges due to travel and travel-related

1 https://musiikkiala.fi/suomalaisen-musiikkiviennin-kasvu-jatkuu-pitkalla-aikavalilla-vuonna-2022-nousua-40-prosenttia/
2 https://tavastiaklubi.fi/vastuullisuus/

emissions. In Finland, challenges with regard to travel include our geographical location, financial issues, schedules and the transport of large musical instruments and equipment. The industry has certain established practices that are unsustainable. For instance, the contracts of international artists may prohibit the artist from performing in several locations in Finland during their tour.

Live music leads the way

In 2020, some of Finland's key live music operators joined forces to work towards a more sustainable music industry and founded a network called **KEMUT**. Their goal was to produce concrete, easy-to-use tools for the live music scene. They also employ a range of communication and education strategies to encourage music producers and consumers to adopt more environmentally friendly practices. The KEMUT network partners are Finland Festivals, LiveFIN, Music Finland, Finnish Musicians' Union, Jazz Finland, and the Association of Finnish Symphony Orchestras.

In 2022–2023, the KEMUT network has completed three projects to promote ecological sustainability in the live music industry:

1. Elma.live

To strengthen the industry's expertise with regard to the green transition, a free digital platform for live music Elma.live was released in the autumn of 2022, offering industry players information, tools and support on how to promote sustainable development. At the core of Elma are the UN's 17 Sustainable Development Goals. It contains learning materials about sustainable development, a tool for building your own sustainability programme and a community platform for sharing information.

The design and construction of the platform has been financed with funding from the EU recovery instrument granted by the Ministry of Education and Culture, with the support of the Finnish Music Foundation (MES), the Finnish Performing Music Promotion Centre (ESES) and the members of the KEMUT (Sustainable Music Industry Toolkit) network. In 2023–2024, Elma will be expanded and developed with the new structural support granted to the project by the Ministry of Education and Culture. Projects financed with the structural support include the translation work of the key contents of Elma.live into English. This project was completed in October 2023.

2. The live music climate roadmap

The live music climate roadmap sets common climate goals for the industry and identifies themes of climate work, the roles of different players, and key advocacy areas in climate work. Coordinated and administered by the Finnish Jazz Federation, the live music climate

roadmap was published in June 2023. The roadmap work also involved calculating the industry's carbon footprint and discussing the circular economy perspective. For the calculation, 32 players submitted materials, most of them festivals and events. The most significant emission sources in the live music industry are travel and transport, procurement and energy consumption in venues. Goals for emissions and a cultural change by 2030 and 2035 were set. Regarding transport, the short-term goals focused on more efficient logistics and driving with full loads. The long-term goal is to switch completely to low-emission vehicles, minimise sporadic one-off gigs and improve the availability of low-carbon transport to live music events.

Regarding energy, the short-term goals include making energy efficiency plans for venues and festivals and favouring renewable energy. Long-term goals include switching to electricity and heat produced entirely with renewable energy, and to some extent producing energy independently. Regarding procurement and consumption, the short-term goal is to improve the circulation of materials and event production, switch to plant-based food, and adopt the principles of sustainable consumption. Long-term goals include making the circular economy mainstream, putting an end to the throwaway culture, as well as offering a sustainable alternative to material consumption. In terms of cultural change, the goal is to make climate wisdom the new normal. In the short term, industry players are encouraged to commit to joint climate action. In the longer term, the music industry will lead the way to a carbon-neutral circular economy and the general public will choose climate-wise music experiences.[3]

3. Analysis: Live music climate effects in Finland

To prepare a climate roadmap, the climate impacts of the Finnish live music sector were analysed in 2022 as part of the Finnish Jazz Federation's **carbon neutral touring model** project. The roadmap and analysis were designed and carried out by Positive Impact Finland. In addition, a working group consisting of music and environmental experts participated in the preparation of the roadmap. The project was financed by the Ministry of Education and Culture, the Finnish Music Foundation (MES) and project partners.

Some music industry players, such as UMO Helsinki Jazz Orchestra and the Lahti Symphony Orchestra have analysed their own climate impact and made plans to reduce their emissions. In the music industry, climate change and environmental issues have also been discussed via thematic concerts or more specifically through artistic content.

3 https://viileamusiikki.fi/site/wp-content/uploads/MusaCO2-raportti_20062023.pdf

Music recordings

In Finland, music recording production should be explored from a sustainability perspective, and reliable information on the industry's environmental effects should be collected. Compared to live music, sustainability work in music recording is in its infancy. Global companies Sony, Universal, Warner and twelve other record companies have signed the **Music Climate Pact**, which promises carbon neutrality by 2050 and halving carbon dioxide emissions by 2030.[4]

In Finland, IndieCo, the interest organisation of independent record labels, has been actively promoting sustainability work. IMPALA, the international umbrella organisation of independent music companies, offers its members a sustainability programme, which includes a commitment, tips on how to make your own operations sustainable, and advice on offsetting emissions. The package also includes a carbon footprint calculator[5] for the recording industry produced together with Julie's Bicycle.

Critical sustainability factors of recording production

- Energy sources and energy used during production.
- Logistics of physical products.
- Raw materials and manufacturing processes for physical products.
- PR associated with recording (for example air travel).
- International trade fairs

Music distribution

In order to cover the ecological sustainability work of the entire music industry, it would be essential to expand climate and circular economy activities to music production and recording. In the workshops arranged in connection with the **Sustainable production models** project aimed at music and film industry professionals, participants noted that the climate emissions of streaming were significant compared to other forms of music consumption. They also felt it was important to expand the discussion from the climate crisis to the diversity crisis, especially with regard to cultural change.

In the streaming business, the most significant sustainability challenge is the current monthly subscription pricing model, which encourages subscribers to maximise their music consumption. It is easy for an individual consumer to forget that every time they stream, not to mention search for a song, they consume energy. In addition, the so-called pro rata model of royalty distribution to rights holders, which is based on the number of clicks in streaming services, has provided a fertile breeding ground to criminal bot platform services. Rights holders can pay these platforms to play their recordings, thereby increasing the number of times their songs have been streamed. These so-called bot farms have become a

4 https://www.musicclimatepact.com/who-has-signed
5 https://www.impalamusic.org/sustainability-programme/

serious problem in the entertainment streaming business. They also generate significant emissions, which current calculations are unable to take into account. In the current system, a song only needs to be streamed for 30 seconds to earn a royalty, which provides excellent conditions for bot farms.

To right the current wrongs in the music streaming business, a model based on consumption instead of a monthly subscription has been proposed, either as a replacement or to coexist alongside the present model. This would result not only in reduced energy consumption on streaming platforms, but also in greater transparency for the rights holders. In addition, it would involve a transition away from the click-based royalty payment system and would require streaming the entire song to generate royalty. These changes would destroy the business logic of bot farms.

Technology, including applications linked to artificial intelligence, will be increasingly involved in music production and consumption. Discussion on artificial intelligence in the music industry has thus far focused on copyright issues while sustainability problems related to learning have mostly been ignored. A study conducted in Texas reveals that artificial intelligence consumes huge amounts both energy and condensation water.[6]

More sustainable operating models are sought in the production of physical records, too. Helsinki Record Pressing (Helsingin Levypuristamo), a modern vinyl pressing plant founded in 2021, strives for carbon neutrality and focuses on sustainability and the green transition. The sustainable production of vinyl records responds to the change in consumer behaviour and offers a more sustainable way of consuming music by buying less and less frequently. Physical products such as vinyl records reflect more sustainable values and affect consumption habits and the way consumers listen to music. Demand for environmentally responsible record production already exists. At the same time, however, pioneering companies have the uneviable role of leading the way with operations that may not be financially profitable.

6 https://www.forbes.com/sites/federicoguerrini/2023/04/14/ais-unsustainable-water-use-how-tech-giants-contribute-to-global-water-shortages/

Proposed measures

The live music climate roadmap identifies some of the most important and concrete actions that each industry player can take to reduce direct emissions and to promote cultural change. Industry players include artists, financiers, event organisers, venues and subcontracting chains.

Measures proposed here include concrete solutions identified in the roadmap for music writers and performers, composers and agents, as well as additional aspects raised in the LuoTo workshop organised in spring 2023. More solutions for the music industry involving energy, travel and the environment are listed in the chapter on sustainability solutions for all creative industries and in the chapter on the event industry.

Impactful actions to be taken at any time

- Choose low carbon travel and transport whenever possible.
- Avoid sporadic one-off gigs – mix with other work and leisure travel.
- Agent or artist: create, offer or request a green rider.
- Choose vegan and vegetarian food.
- Switch to low-emission vehicles and/or fuels.

Impactful cooperation

- Only cooperate with climate-wise partners.
- Demand climate-wise alternatives in contracts.
- Build your own sustainability programme, e.g. in Elma (www.elma.live).
- Calculate your own carbon footprint. Calculation helps you to become more aware of your biggest emission sources.
- Use digital devices for as long as possible. Repair and service equipment.
- Buy sustainably and avoid overconsumption.
- Make bold choices as a climate-wise trendsetter and role model.
- Encourage your public to take action to protect nature, to embrace the circular economy or to take climate action.
- Be climate wise when planning tours.
- Prepare a sensible tour plan that eliminates sporadic gigs and allows the artist to opt for low-carbon travel.
- Buy sustainably and avoid overconsumption.
- Send a strong message about sustainable choices.

CASE: the Finnish Jazz Federation's carbon-neutral touring model

In 2022–2023 the Finnish Jazz Federation carried out a **carbon-neutral touring model** project with the aim of developing climate-resilient practices not only for the Federation's own touring activities but for the entire Finnish live music industry. The project involved measuring the carbon footprint of the Jazz Federation's touring activities and preparing an action plan to decarbonise touring activities. The plan was prepared keeping in mind the objectives of the climate roadmap for the entire live music industry, taking into account the needs and resources of jazz music concert organisers, musicians and agencies. The Jazz Federation's tours cover about 100 concerts in about 40 locations around Finland annually.

While the project was underway in autumn 2022, the Jazz Federation organised seven climate pilot tours alongside its basic touring activities. This provided an opportunity to explore more sustainable alternatives for jazz tours. The pilot tours provided an opportunity to explore ways to reduce emissions and collect information about the feasibility of new touring models and their impacts. In addition to collecting information about the tours conducted using alternative modes of travel (such as train and electric car) and with alternative production methods, the project involved gathering participant experiences and disseminating information about more eco-friendly choices.

Factors taken into account when planning the pilot tours include low-emission modes of travel, accommodation, tour routes, different ensembles and catering. The carbon footprint of all tours was calculated. Using the information obtained from the pilot tours, the Jazz Federation prepared a roadmap towards carbon-neutral tour operations in the spring of 2023. **Towards more sustainable jazz tours together – Climate Roadmap For Jazz Federation Tours 2030** is available in full at www.jazzliitto.fi.

With regard to travel, the lowest emissions were achieved by travelling long legs of the tour by train and by keeping travel within the tour area as short as possible. Where using public transport for shorter travel is not possible, emissions can be reduced by using an electric car instead of a diesel car. Emissions from using a diesel vehicle can be reduced by using renewable diesel and driving with a light load. Other ways to reduce emissions include economical driving at a moderate speed. Musicians who took part in the pilot tours were generally satisfied with travel by train and electric vehicle.

Reaching several different audiences in a small area and in a short period of time is carbon wise. Performing at schools along with evening concerts was a positive experience for the musicians. A "satellite tour" of the nearby region while based in one place of accommodation was considered good practice that supports the musicians' well-being. Similarly, short distances helped to reach the emission reduction goals. If

organising a tour in this way is not possible, emissions can be reduced by staying in a carefully selected apartment instead of hotel.

During the project, the Finnish Jazz Federation encouraged concert organisers to make more sustainable choices by using green riders. In the riders submitted to the concert venues, artists asked organisers to save energy, reduce waste, encourage the audience to use public transport for travel to the venue, and offer vegan food to the artists and the audience.

In addition to reducing the emissions from the Jazz Federation's productions (e.g. promotional materials, transport, accommodation, production subsidies) the Jazz Federation's climate roadmap and its carbon-wise solutions aim to make a positive impact on the general operating culture of tour bookers, producers, technicians and musicians. By encouraging verifiable climate actions, the roadmap aims for carbon-neutral tours in 2030.

CASE: Carbon-free Sinfonia Lahti

The Lahti Symphony Orchestra (or Sinfonia Lahti) launched groundbreaking work in 2015 to create a carbon-neutral symphony orchestra. Since then, it has received numerous awards for its sustainability work. With its sustainability efforts, Sinfonia Lahti wants to lead the way and encourage others to find solutions to the climate and biodiversity crisis. A gradual decarbonisation of the orchestra's activities can, in a small way, help to slow down the global climate change. Sinfonia Lahti considers its sustainability work a natural part of the City of Lahti's journey towards its goal of carbon neutrality by 2025. After changing its energy production structure, the City of Lahti focused on reducing its emissions, especially those generated by travel and transport and other daily consumption.

The project began with the calculation of the orchestra's carbon footprint in 2015 in collaboration with Lappeenranta University of Technology LUT School of Energy Systems. In her master's thesis, Pilvi Virolainen[7] studied which functions of the symphony orchestra caused the most significant greenhouse gas emissions and how those greenhouse gas emissions could be reduced and compensated. The same year, Myrskyvaroitus – Storm Warning ry and Sinfonia Lahti launched a collaboration that involved organising a sustainability workshop for the entire staff of the symphony orchestra and preparing an action plan that will help the orchestra in its pursuit for carbon neutrality. Involving the entire staff in the early stages of the action plan was considered very important in order to make everyone embrace the changes such a comprehensive carbon neutrality project would require in the orchestra's practices and policies.

The carbon footprint calculation showed that the most significant source of greenhouse gas emissions in Sinfonia Lahti's activities was travel and transport. Audience travel represents approximately 60% of Sinfonia Lahti's carbon footprint, as most people still use their own cars to drive to concerts. Another major source of greenhouse emissions is the orchestra's international tours which require air travel.

Climate advocacy work to change audience behaviour plays a big role in the orchestra's sustainability work, but making change happen takes time. According to audience surveys commissioned by Sinfonia Lahti, classical music audiences are interested in sustainability issues, and Sinfonia Lahti's audience is a key supporter of the orchestra's sustainability work. From the outset, the audience has given its unwavering support to the orchestra's environmental actions.

Since audience travel accounts for a significant part of the orchestra's carbon footprint, ways to reduce driving are actively explored. Based on an audience survey, the majority of Sinfonia Lahti's audience are aged over 65 and prefer driving for reasons of convenience. Up to 63% of the respondents said that they would be unlikely or very unlikely to use public transport to come to Sinfonia Lahti's events and mentioned poor public

7 https://lutpub.lut.fi/bitstream/handle/10024/117794/Diplomity%c3%b6_Virolainen.pdf?sequence=2

transport connections and the convenience of driving as reasons. Tried and tested ways of encouraging the audience to switch from driving to public transport include more effective communication about public transport connections, a free shuttle service from the city centre to the concert hall to ticket holders, or a reduced fare on the city buses on concert days.

As part of the Carbon-neutral Sinfonia Lahti project, members of the orchestra did local tours around Lahti in small groups, travelling to concerts venues on foot or by bike and raising awareness of the orchestra's carbon neutrality work, the role of Lahti as the European Green Capital 2021 and Lahti as a cultural city.

Sinfonia Lahti celebrated the International Day for Biological Diversity 2023 by organising an event where the orchestra members built birdhouses, picked up twigs and rubbish, repaired bicycles, and invited its audience to take part in the **Million trash bags** campaign organised by the Finnish Broadcasting Company YLE.

In 2019, members of the orchestra planted 6,000 spruce saplings in an eight-acre forest area in Hollola as part of the Carbon-neutral Sinfonia Lahti project. The planting work was carried out in cooperation with the Päijät-Häme Forest Management Association on the lands of a private forest owner. For each tree cut in the regeneration felling, 4–6 saplings aged 18 months from a nearby nursery were planted. The aim of the planting was to compensate for the travel and transport emissions from the orchestra's activities caused by audience travel and the orchestra's tours. Afforestation was considered a good way to promote the joint climate goal, and it was hoped to serve as an example and inspire others to do the same.

Digital footprint

Use of equipment

The type and purpose of the device greatly affects its overall digital footprint. To reduce your carbon footprint, stick to these principles:[9]:

- **Choose smaller.** In general, the bigger the device, the more energy it uses. Attending an online meeting or watching a video on a phone is usually more energy-efficient than on a TV or laptop screen.[10]
- **Connect.** Whenever possible, use your devices on Wi-Fi instead of roaming. 4G consumes about four times more electricity than Wi-Fi.
- **Be mindful when streaming.** The amount of electricity used when streaming a two-hour video on a laptop (including network and data centres) is equivalent to driving an electric car for about 0.6 km. However, it is important to note that video streaming is very popular and accounted for 63% of all global internet traffic in 2015.11 To reduce the effects of streaming, watch content below HD quality. Another simple way to reduce the environmental impact of streaming is to download music on your own device, which is an eco-friendlier solution than constant streaming.

In its article,[12] Teosto copyright society explores the environmental effects of streaming and refers to a study by Keele University (Georgen and McKay, 2019), which suggests it is OK to stream music if you listen to the song only a few times. If you listen to the same recording repeatedly, you should consider buying a CD or a record. Streaming an entire album 27 times takes more energy than making a CD.

Educate yourself, plan carefully and measure

- Increase your understanding of what a digital footprint consists of by educating yourself and by talking to subcontractors and service providers.
- Start by finding out which activities produce your digital footprint. What is it you want to achieve: understand the footprint of one digital project, reduce the footprint of your digital operations, or are you planning to buy new digital equipment and create a circular economy strategy?
- Explore what options are available for measuring digital impact. **Erjjio** offers a free website health check, and the **Green Web Foundation's** application checks service providers' credentials, showing whether the website management is 'green or grey'. Other tools, such as the **Wholegrain Digital** calculator, measure a website's carbon footprint, and **Ecometer** enables its users to design and build a more ecological website.

Ways to drive sustainability transition

- **Inspire:** Inspire others to embrace change and be sure to share the best action you've taken to reduce your digital footprint. Communicate actively about your actions.
- **Ask:** Talk to technology and digital service providers about their environmental and energy reports and about measures they are taking to reduce their environmental impact.
- **Encourage:** Lead by example and switch to renewable energy and encourage your colleagues, friends and family to do the same.

Do a big digital cleanup

- **Efficiency**. Make sure your software, websites, applications, digital art and public communication are efficient, fast and accessible. This will serve your audience's ability to concentrate and reduces the environmental impacts. Consider these: reduce the amount of code transferred to users' computers, use static content instead of dynamic, minimise the computation needed to render web pages, and improve audio and video codecs.
- **Fight digital waste**. Check what is being recorded digitally and where. The more you store digitally, the more energy is needed. Remove unnecessary or unused items such as apps, emails and files, and cancel unsolicited e-mail subscriptions. Then transfer the remaining data to a cloud server if possible because cloud data centres are usually more efficient.
- **Use a green search engine**, such as **Ecosia**, which turns searches into planted trees, or **Ocean Hero**, which turns searches into plastic bottles collected from the ocean.

9 Environmental Sustainability in the Digital Age of Culture. Opportunities, Impacts and Emerging Practices, 2022. Julie's Bicycle: Hazlewood, Latham, Buckley ja Tickell (applied).
10 Ericsson, 2020, ICT and the Climate: https://www.ericsson.com/en/reports-and-papers/industrylab/reports/a-quick-guide-to-your-digital-carbon-footprint
11 https://www.greenpeace.org/static/planet4-international-stateless/2017/01/35f0ac1a-clickclean2016-hires.pdf
12 https://www.teosto.fi/teostory/musiikki-ja-ilmastonmuutos-jattaako-musiikin-striimaus-jaljen/

8.10 Gaming

There are 232 game developer companies in Finland. Most of them are small, but there are some industry giants such as Supercell, Rovio, Small Giant Games, Next Games, Remedy, Fingersoft and Housemarque.

Finland's game industry is among the largest in Europe. The most popular platforms are mobile and PC. Some 50 new games were released in Finland in 2022. The smaller number of released games in relation to the number of companies is mainly due to the GaaS (Game as a Service) business model, where existing games are updated.

The combined turnover of the Finnish game industry was EUR 3.2 billion in 2022. The game industry employs 4,100 people, 22% of them women and 30% foreigners. The game industry is strongly international.

Game industry and ecological sustainability

The biggest source of the game industry's carbon footprint is the end users, i.e. the players. According to estimates, gaming accounts for the majority of the game studios' emissions, up to 75–99%. The carbon footprint of the YouTube communities created around games can be up to around 20%. In the game industry, carbon offsetting is a widely used method to achieve carbon neutrality. Many of the Finnish game studios, including Supercell and Rovio, offset their carbon footprint.

The game industry has significant potential for influencing through content and for disseminating ecologically sustainable practices. The industry reaches the majority of children and young people around the world, which makes it perfectly equipped to influence their values and actions through games.

Sustainability in the game industry now

SNeogames is the interest organisation of the Finnish game industry. It also promotes the sustainability of the game industry through its climate change working group, which is one of the organisation's Special Interest Groups. Neogames is currently developing a model that video game companies can use to calculate their carbon footprint. The model includes both direct and indirect emissions from the game companies' own operations as well as emissions from playing the final product (game).

The calculation model was tested in 2022; this provided a preliminary understanding of the structure of the Finnish game industry's emissions and the opportunity to update the model accordingly. At the Finnish Game Awards in May 2023, an online calculator was released, which is a simplified and easier-to-use version of the calculation model. In cooperation with the Finnish Game Developers' Association, the model is continuously improved and updated. The calculator is in open beta and available on the Pelimetsä website,[1] and a Google spreadsheet is also available to facilitate the calculation.[2] The model includes emissions from gaming, YouTube viewers, game companies' offices, telecommuting and travel, but excludes emissions from internet connections or from downloading games.

Pelimetsä is a joint project of the Finnish game developer community and the Finnish Natural Heritage Foundation for the protection of old Finnish forests. The Pelimetsä project was launched in 2020, and more than 20 game industry companies and numerous private individuals have made donations to the project. So far, the Pelimetsä project has contributed to the preservation of over 330 acres of old-growth forest.

1 https://pelimetsa.fi/home/
2 Game Industry CO2 emissions calculator

The Pelimetsä website offers a simple calculator for estimating the CO_2 emissions produced by game development. Visitors can also make voluntary donations to the forest protection campaign. The calculator is in the testing phase. The carbon footprint calculator available at Pelimetsä is a pioneer project of the Finnish Game Developers' Association for voluntary climate impact assessment. The calculator is simple and easy to use compared to the calculation model. Tools are developed and updated regularly. The model for calculating the carbon footprint of game companies prepared by Neogames was used as a basis for the calculator.

Companies that want to do a more accurate calculation themselves can use Neogames' calculation model.[3]

International collaboration

Playing for the Planet is a sustainability initiative facilitated with the support of the United Nations Environment Programme (UNEP) and led by the games industry. Both Rovio and Supercell are founding members of the alliance. Playing for the Planet was launched at the UN Headquarters in New York during the UN Secretary-General's Climate Action Summit. Through its members, the alliance is able to reach more than a billion players. By joining the alliance, game companies commit themselves to the sustainable development goals they choose.

In Europe, the European Games Developer Federation has taken a position on the industry's sustainable development. In its statement in 2020, the federation highlighted the importance of transparent carbon footprint data in B2B activities and called for more transparent carbon footprint data, especially with regard to cloud services, game engines and advertisements. Having access to data from these activities, which is essential for games development, would enable the industry to calculate and then offset its emissions.

In addition to creating a carbon footprint calculation model, Neogames has prepared a check list for game companies on how to reduce their emissions. The tips listed below are based on either the Neogames check list (NG) or issues raised in the LuoTo workshop in spring 2023 (L).

3 https://pelimetsa.fi/home/?section=other&modalId=095918fb-6d80-4a92-9d29-11aa8c0679bf

Tips on how to reduce emissions in the game industry

Emissions reduction guidelines for the game industry. The list is largely based on the check list prepared by Neogames (NG).[4]

Distribution

- Consider the need for physical copies carefully. (NG)

Hosting

- Check that your hosting service provider uses renewable energy and that you are getting reliable data on the emissions from using hosting services. (NG)

Code

- Make your code and software as efficient as possible. Check the processing power that goes to off-screen objects and see if it could be reduced. (NG)

NFT

- Choose the platform with energy efficiency and so that it does not require massive data mining (NG)

Training and education

- Produce material on sustainability for game industry training institutions (L)

Office (NG)

- Have an office of a size that suits your studio's needs.
- Check the energy efficiency of the office.
- Check the source of energy (both electricity and heating and cooling).
- Check the room temperature – would employees accept a temperature that is one degree lower?
- Check the lighting options you use – are they energy efficient?
- Recycle waste correctly.

Development emissions (NG)

- Check the energy efficiency in premises outside the office and in the appliances used.
- Check the energy sources of the venue

4 https://neogames.fi/checklist-to-reduce-carbon-dioxide-emissions/

Purchases (NG)

- Restrict all purchases to what your studio needs.
- In tech purchases, check energy efficiency and recyclability.
- Check if you could buy something recycled (e.g. office furniture).
- Recycle purchased goods correctly at the end of their life cycle.
- If computers, etc. are still usable, check options for donating/selling them.
- Don't buy too much.

Commuting, company cars (NG)

- Support remote/hybrid working when it suits your studio and company culture.
- Support commuting by bicycle and public transport.
- Use the company car only when necessary.
- If you are changing your company car, choose a car that consumes less fuel or an electric car.

Working from home (NG)

- Check that the equipment employees need to work from home fits their needs and is energy efficient.

Travelling (NG)

- Travel only when necessary – be critical.
- Check if a video call would be possible.
- If a video call is not possible, check if the face-to-face meeting can wait until there is some other need to travel that part of the world.
- Avoid flying when possible. Choose a train, bus or ferry instead.
- When flying, choose economy over business or first class. Economy class emissions per passenger are lower than in the more spacious business class.
- Make sure your travel regulations permit slow travel and count travel time as working hours

Rovio is a long-term sustainability champion

The story of the Finnish company Rovio, best known for its international mega-brand Angry Birds, began in 2003. Rovio is also a pioneer in sustainable development. For years, Rovio has had a very simple climate and environmental goal: minimise negative impacts and maximise positive impacts. In practice, this means calculating and reducing Rovio's carbon footprint. Rovio has been calculating its carbon footprint since 2018 and its goal is to be carbon neutral. Its calculated carbon footprint in 2022 was 6,786 tonnes of CO_2 equivalent, with the emissions from players' gaming equipment accounting for 69.7%.

Rovio increases environmental awareness through various contents and campaigns. In 2022, Rovio organised two major campaigns within the Angry Birds Friends game, increasing players' awareness of climate and the environment. In January 2022, a collaborative campaign with Popeye and SeaCleaners raised awareness about the state of our oceans. The event reached 5.5 million players and was viewed 2.7 million times on social media. In June 2023, as part of Rovio's contribution to the Green Game Jam event, a week-long event with a green theme was launched in the Angry Birds Friends game: pigs destroyed forests and birds tried to stop the destruction.

The event helped to reach the goal of planting 15,000 trees together with the players through the Ecosia platform. The event reached 3.8 million players in the game and one million people on social media. It is important for Rovio that the industry works with various stakeholders to drive sustainability. International stakeholders include UNICEF, **Playing for the Planet** and **The Fair Play Alliance (FPA)**.

Rovio also collaborates with Neogames and is a member of Finnish Business & Society FIBS.

8.11 Events and festivals

The event industry covers about 3,200 companies nationwide. The total value of the industry is EUR 2.35 billion and it employs almost 200,000 people. The industry accounts for approximately 1.2% of Finland's GDP and produces an annual value added of EUR 800–1,200 million.[1] Before the COVID-19 pandemic the industry was growing rapidly and is now gradually returning to the pre-pandemic growth track, based on figures from 2022.[2] Much of the work in the event industry is gig work and voluntary work.

Events are a labour-intensive business requiring an extensive network of service providers. The sector's biggest environmental challenges have to do with travel and transport, and venue infrastructure. There is a clear connection between the event industry's biggest emission sources and its environmental impacts, which makes it easy to start decarbonisation from the biggest emission sources.

Audience travel causes the biggest environmental impacts in the event industry. In cultural events, audience travel by car and public transport to and from the venue causes approximately 40–80% of the industry's CO_2 emissions[3] and in sports events up to 90%.[4] Other and clearly smaller environmental impacts are generated by energy consumption at the venue, air travel of artists and staff, and the necessary logistics. By influencing audience travel and by replacing fossil fuels with more ecological alternatives, a significant change can be achieved, especially in terms of the event's carbon dioxide emissions.

However, the environmental effects of events are not limited to carbon dioxide emissions. The use of virgin natural resources causes significant environmental impacts that must be taken into account in functions such as procurement. The industry is currently developing a tool that would enable a more accurate assessment of the material footprint in addition to climate emissions. This would provide a more comprehensive calculation of the sector's environmental impacts.

Providing audiences with an opportunity to make more environmentally friendly choices is an important way to promote social change. Events offer ways to pursue ecological sustainability and enable experimenting outside the scope of daily activities.

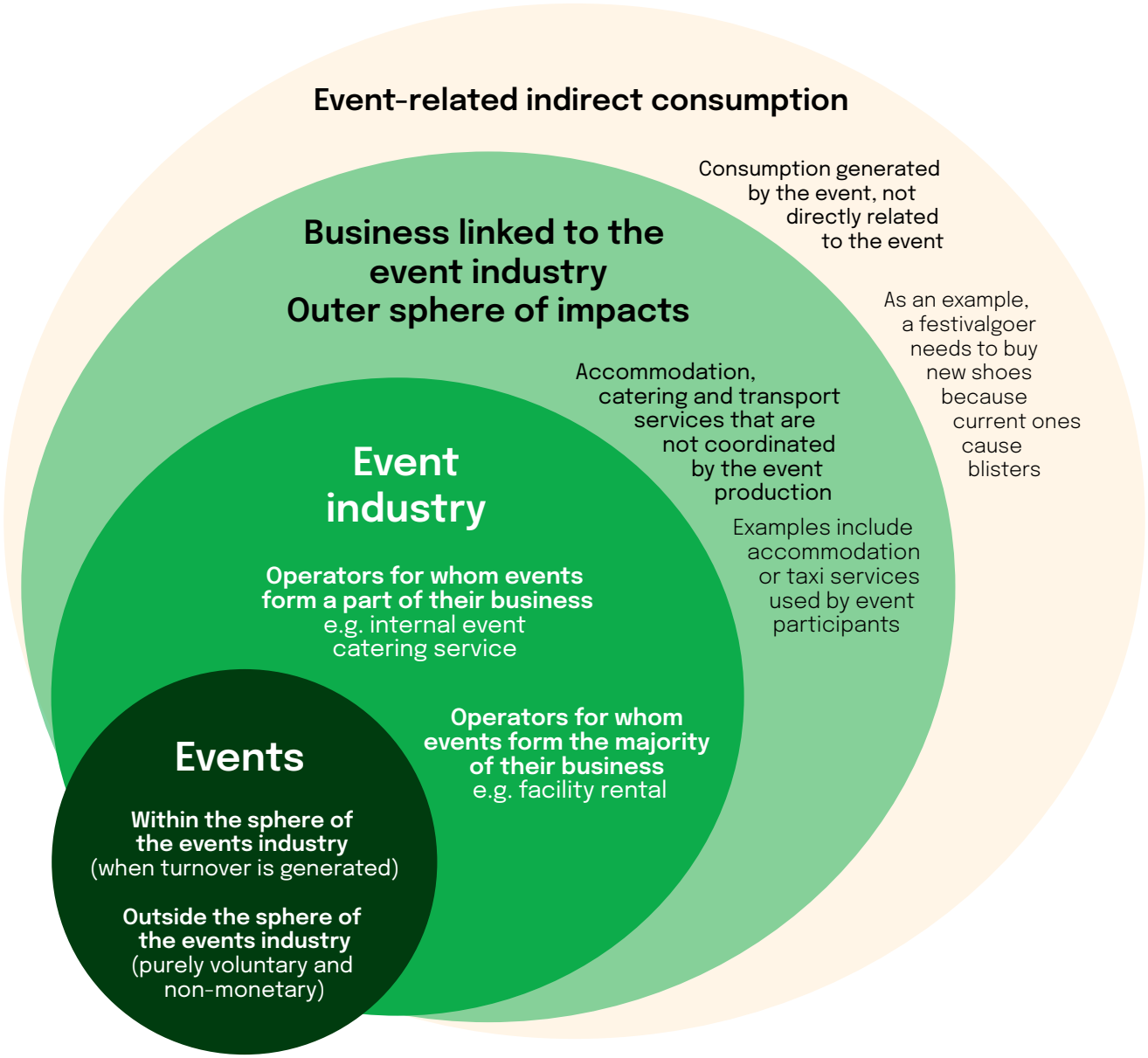
1 Tapahtumateollisuus ry. 2023, General brochure of the Finnish event industry p.10, www.esitteemme.fi/tapahtumateollisuus/WebView/
2 Sectoral Definition of the Event Industry and its Connections to Urban Development, Publications of the Ministry of Economic Affairs and Employment 2023:1, p.34. http://urn.fi/URN:ISBN:978-952-327-930-8
3 AGF Carbon Footprint Report 2022/23, p.8. www.agreenerfuture.com/carbonimpactsassessment
4 Goldblatt, D. 2023. Understanding sports' carbon emissions. Article on the Play the Game website cited on 25 September 2023. https://www.playthegame.org/themes/sport-and-climate-change/

Established in Helsinki in 2004, Flow Festival has led the way in climate work for fifteen years. In 2021, to take its work to the next level and to benefit from the latest research, the festival launched cooperation with D-mat, a specialist in sustainable futures.

Together, D-mat and Flow Festival launched an EU-funded research project, the purpose of which was to accurately determine the extended carbon footprint of a large festival (including scope 3 emissions) and, for the first time, the festival's material footprint.

Based on the calculation of the 2022 Flow Festival, reliable information was obtained about the overall environmental effects of the festival and new measures were created to reduce its footprint. The Flow Impacts report containing these calculations was published in March 2023.

In the next stage of the research project, Flow Festival plans to produce, together with Tietoevry software company, a tool for budgeting the use of natural resources and ecological footprint. Tailored to the event industry's needs, the tool will allow events to plan, monitor and reduce their environmental impact.



Impacts of events
Original graphics: Tapahtumateollisuus ry

Some of the players in the event industry have taken active steps to reduce environmental impacts. Extensive development projects are underway at both the international and national levels, which will serve the entire industry once the knowledge and competence gathered in the projects are shared within the industry. Good examples of proactive environmental work in the event industry include projects launched in the live music field by the Kemut network,[5] collaboration between Flow Festival and D-mat,[6] and Our Festival's **sustainability transition** project.[7]

Yourope, the European Festival Association, has developed and released the European Green Festival Roadmap 2030.[8] In connection with the road map, an open learning portal[9] was also launched to enable festival organisers and service providers to learn and build better practices. In addition, many municipalities are taking action to build more sustainable events in their area. For example, the City of Helsinki aims to be the world's most sustainable travel destination,[10] and as part of this broader goal the city has developed a carbon footprint calculator for events as well as related guidelines.[11]

Both the preliminary report[12] of the LuoTo project and the workshops organised during it showed that some of the players in the field have actively and at their own initiative been building better practices for years. Environmental work focuses on evaluating and reducing climate emissions based on emissions calculation and target-setting.

Provinssi, one of Finland's largest festivals, calculated its carbon footprint in 2022. A similar calculation will also be prepared for the 2023 festival. The carbon footprint was calculated by Positive Impact Oy, as part of the Finnish Jazz Federation's **Carbon Footprint of Live Music** project.

"We will continue to calculate our environmental footprint so that we can track our climate development in the long term. Unfortunately we have very limited resources, which makes it a challenge for us. The free tools created in connection with the Carbon Footprint of Live Music project thankfully makes the calculation easier and faster."

– Peppi Arrimo, Provinssi Festival, Head of Production

5 https://www.kestavamusiikki.net/
6 www.flowfestival.com/current/uploads/2023/03/FLOW-IMPACTS_REPORT.pdf
7 https://meidanfestivaali.fi/2023/07/meidan-festivaalin-2022-hiilijalanjalki-on-355-tonnia-co2e/
8 https://yourope.org/know-how/green-roadmap/
9 https://www.futurefestivaltools.eu/
10 www.hel.fi/fi/uutiset/kaupungin-hiilijalanjalkilaskuri-ensimmaista-kertaa-kaytossa-sidewaysissa
11 www.hel.fi/fi/yritykset-ja-tyo/yritykset-ja-yrittajat/tapahtuman-jarjestaminen/vastuullisuus-tapahtumissa/ymparistovastuu
12 https://www.aalto.fi/sites/g/files/flghsv161/files/2022-11/LuoTo-raportti.pdf

Actions: A carbon-wise event industry?

Collaboration in the event industry is paramount to promoting environmental work. Actions and related goals must be planned and scheduled in a way that encourages action, however, taking into account the urgency of the ecological sustainability transition and the timelines of Finland's climate commitments.

As a rule, it is advisable to be critical about the choices related to organising an event, and always consider environmental aspects when making decisions. It is easiest to assess and compare alternatives and discuss environmental impacts in the early stages, i.e. when planning the event. In the initial stages, production staff will be required to invest resources, make special efforts and learn new things in order to factor climate matters in. It is advisable to choose challenges and measures that suit you, and implement new practices with moderation, yet ambitiously.

SLOWLY IS THE FASTEST WAY TO WHERE YOU WANT TO BE.

– André De Shields

1. Target setting

Tangible targets are essential for climate work and should be set both for individual events and for overall long-term development. This means creating and tracking metrics, as well as reviewing related targets at regular intervals. These targets should be set in the event organisation's strategy or when discussing the event's value base, and they should cut across all levels of the production in terms of operations and people. Clearly formulated and consistent targets simplify work in practice.

Examples of clearly formulated targets:

- Recruit your own environmental coordinator or share with another organisation.
- Calculate the event's or organisation's carbon footprint.
- Reduce the event's carbon footprint.
- Prepare an environmental programme for the event.
- Improve waste sorting.
- Give up animal-based products.
- Support activities that promote biodiversity

2. Organisation

Covering everything from small, informal gatherings to mass events in culture and sports, the event industry is diverse and fragmented. There is no single entity that would provide guidance on climate; instead, the industry consists of a large number of players that produce events. This makes it difficult to introduce common standards and implement environmental measures.

The following measures are proposed to address the fragmentation:

- Create an umbrella organisation for sustainable events or make one of the existing organisations the platform for cooperation and information exchange.
- Include clear targets in the industry's growth pact as well as tools to help the industry bear its responsibility and reduce its negative environmental impacts.
- Forge closer educational cooperation between the sector and educational institutions. Emphasise sustainability and the future outlook of society and the industry in education.

3. Enhance competence

Professionals in the event industry have limited time and resources for environmental work. Resources for climate work are scarce, and work is often carried out in addition to regular duties. There is also a lack of competence in environmental matters and in understanding the links between the industry and its ecological footprint. Short-term projects and voluntary work are typical in the industry, which complicates competence development.

To bridge the skills and competence gap, the following measures are proposed:

- Provide continuing education based on concrete examples, actions and science-based information.
- Focus on the most impactful actions and promote collaboration between providers of continuing education and environmental and climate science research organisations.
- Encourage employee and employer unions and industry representatives to participate in the planning and implementation of continuing education.

1. Environmental education and training is needed that addresses the industry's challenges. Structures should be created to support the environmental expertise of those involved in event organisation.
2. Education providers foster discussion on sustainable topics with universities, environmental organisations and specialists in order to promote timely and effective environmental work.
3. Offer encouragement and support to event organisations to ensure adequate resources for environmental work.

4. Discuss sustainability issues more broadly in the induction training provided to volunteers, as well as other matters volunteers can influence.
5. Ensure that all employees have the basic environmental and sustainability skills.
6. Include environmental competence in new employee job requirements to the extent that the job in question is linked to the organisation's sustainability work.

4. Improve communication

Events reach a huge amount of people, which makes them an ideal platform for promoting ecological sustainability. This is a significant resource that should be put to more effective use as a tool for eco-social education and cultural transition. Raising awareness of research information and sustainable choices serves as a good example for visitors. Artists should also be made aware of their role in terms of environmental impact.

Proposed action:

- Invite the event industry pioneers and cultural financiers around the same table to discuss the future of the industry and its power to drive change.
- Communicate the industry's environmental work more widely and share knowledge beyond the industry.
- Prepare guidelines for terminology that is in line with the generally accepted scientific definitions.

5. Procurement

The industry has no single procurement system that takes environmental responsibility into account. Instead, each entity that sends out a call for tenders creates their own scoring systems. Event organisers can strive to influence event venues and property rental agencies by setting ecological criteria. Venues often lack green electricity, adequate waste management or circular economy opportunities. This could be problematic unless the owner of the venue or the rental agency are willing to cooperate.

It is often difficult to obtain reliable information about the environmental effects of the activities of subcontractors participating in the event. Transparency across the value chain and sustainable scoring criteria would encourage more sustainable practices. It is essential to use circular economy solutions: borrow, rent, repair, reuse. In general, it is important to reduce the consumption of virgin natural resources.

Proposed action:

- Create and promote environmentally friendly procurement systems. Create scoring or bidding structures to allow comparison between partners in the value chain, and demand better environmental reporting from subcontractors to improve the system.
- Involve venues and their managers in environmental work. Prepare a report with property owners on the use of sustainable energy solutions. At the same time, request more open access to event venues' energy consumption data.
- Include the effects of procurement legislation in sustainable decision-making and, if necessary, try to advocate for regulation that promotes sustainable solutions.
- Minimise energy consumption in venues and use renewable energy.
- Limitations of liability according to the GHG protocol should be introduced more widely and require compliance from each operator across the value chain. This would facilitate Scope 3 measurement in particular.

6. Emissions from travel and transport

Audience travel is almost always the largest single emissions source at public events. Various incentives can be used to encourage audiences to make more sustainable choices. Decisions affecting an event's overall ecological footprint are made in the early stages when a venue is selected. Information is also needed on audience travel habits, including public transport use, to explore sustainable transport options. Emissions caused by the event can be significantly reduced by cooperating with public transport companies or by preparing a comprehensive pedestrian and bicycle plan. Systematic cooperation with the regional public transport operator and clear communication to the audience is also vital.

Proposed action:

- Collect information about the visitors' mode of travel in connection with ticket purchase.
- Provide opportunities for using public transport.
- Provide opportunity to buy a public transport ticket at a low price or for free in connection with event ticket purchase.
- Promote sustainable forms of transport, such as public transport, cycling or walking.
- Plan transport and logistics together with event planning and actively advertise low emission travel choices to the audience.
- Analyse the impact of offering free public transport and experiment in connection with major events.

9 Emissions calculation in the creative industries

Carbon footprint calculation is a well-known form of sustainability work in the creative sectors. Many challenges with regard to carbon footprint calculation have been identified, such as how to limit the sources of emissions to be calculated and the human resources required. Many organisations have started to calculate the footprint of their operations independently, as part of a project or as an outsourced service. Calculations may cover all operations, a specific part, or a product/service.

Several tools for assessing the largest sector-specific emission sources are already available in several creative sectors, allowing targeted actions with the biggest impact. It is essential to bear in mind that while calculating the footprint allows organisations to estimate the emissions from their operations, it does not directly reduce the emissions. However, by calculating their footprint organisations can analyse their emissions and monitor the effectiveness of actions. To act sustainably and to respond to the ecological sustainability crisis, it is advisable to plan and implement reduction measures while the calculations are being carried out.

Carbon footprint[1] calculation

There are several ways to calculate a carbon footprint. The biggest challenges with regard to comparability of the results include the limitations made during the calculation, differences in data sources, and incomplete or conflicting initial data. There may be differences in calculation methods, and initial data and emission factors may be used differently. This makes it difficult to compare results and creates uncertainties in the calculation process. It is therefore important to remember that the calculation is always an indicative estimate and should be updated when more data becomes available.

However, there are standards and protocols available for calculating a carbon footprint, which improve comparability to some extent. The most important is the **Greenhouse Gas Protocol[2]** created in 1998.

The Greenhouse Gas (GHG) Protocol provides a consistent model for measuring and tracking greenhouse gas emissions. Most carbon footprint calculations follow the categories and boundaries defined in the protocol. It divides emissions into three categories (scope 1, 2, 3):

- Direct emissions from operations,
- Indirect emissions from production, and
- Emissions across value chain.

Direct emissions are those generated directly as a result of the company's operations, for example emissions from its own vehicles. Indirect emissions from production cover the emissions of purchased energy. Emissions across the value chain include everything else linked to the operations, such as emissions related to procurement, transportation and the use of a product or service.[3]

If any area is excluded from the calculation, it is important to communicate this openly during the calculation, as excluding large emissions sources can distort the results. In terms of carbon footprint calculations, it is important to bear in mind that sometimes Scope 3, for instance, may be completely excluded from the calculation.

The calculation itself is not difficult, but data collection and validation is quite time-consuming to ensure that the data provided is reliable and accurate. Collecting data from services or products often becomes more difficult the longer and more complex the value chains are. This almost inevitably leads to the simplification of complex processes.

The best result require using data from the manufacturer on the carbon footprint of their product or service. Such information is not yet available for most products or services; instead, a carbon footprint has to be estimated based on the product's energy consumption, weight or price.

1 Carbon footprint = the amount of greenhouse gas emissions generated by an activity or product. Various greenhouse gases are accounted for, but the result is usually reported in carbon dioxide equivalents.
2 https://ghgprotocol.org/about-wri-wbcsd
3 https://www.openco2.net/fi/artikkelit/mita-tarkoittaa-scope-3
https://greencarbon.fi/mika-ihmeen-scope-1-2-3/
https://ghgprotocol.org/corporate-standard

In this case, the carbon footprint is calculated as follows:

For goods:

[Weight of procured material, kg] x [Emission factor of material, kgCO_2e/kg] = [Emission caused by the material, kgCO_2e]

or

[Price of procured product, €] x [Emission factor of product group, kgCO_2e/€] = [Emission caused by the product, kgCO_2e]

For energy:

[Energy consumption, kWh] X [Emission factor of the energy source, kgCO_2e/kWh] = [emission caused by energy consumption, kgCO_2e]

In practice, it is possible to calculate the footprint by multiplying the quantity or price of material procured or used by the emission factor of the product or service.

Product group-specific price-bound emission factors have been determined using environmentally-extended input-output (so-called EEIO models, for example ENVIMAT in Finland and EXIOBASE globally).

The emission factor or global warming potential (GWP) may also be found in the product's Environmental Product Declaration (EPD) and hopefully in the near future via the European Union's digital product passport.[4] In addition, many domestic companies calculate the emission factors of their products and services, and can provide this information for procurement or emissions calculation purposes. Emission databases are also available online.

The emission factor is a relatively simple way of converting all emissions into carbon dioxide equivalents ($C0_2e$), and the vast majority of existing calculators work on this principle. The emission factor takes other greenhouse gases into account and converts them into carbon dioxide to simplify the calculation and assessment. Finding the right emission factor can be difficult, and the factors should be examined critically and updated if necessary.

4 https://gs1.fi/fi/eu-digitaalinen-tuotepassi

Roles and responsibilities in footprint calculation

Organisations have varying practices for the calculation of carbon footprints. At the Sibelius Academy, personnel have been allowed to use their working time to calculate the carbon footprint of opera productions. Larger companies can afford to outsource the service to specialists. Many creative sectors run projects that allow calculations to be made jointly with the help of an external specialist. Some individual organisations in the event industry have developed their own calculators.[5] However, resources from the client organisation are also needed to collect background data for the calculation.

Interest organisations as key actors

In many creative sectors, interest organisations offer services or support for carbon footprint calculation, or they have worked together to determine the industry's emissions. In the AV industry, the interest organisation APFI offers training and tools for all industry players.[6] Neogames ry, which promotes the interests of the game industry, has developed a simple calculator and a calculation model that provides instructions and information to enable organisations to assess their own carbon footprint.[7] Finnish Textile & Fashion has a carbon-neutral textile industry 2035 commitment,[8] the Finnish Publishers Association takes part in a project concerning the entire media sector,[9] and key players in the visual arts field collaborate in the Green Palette project.[10] It would make sense to carry out similar projects on a wider scale that provide access to shared practices, instructions and information. Creative industries could learn from each other if knowledge was shared across industry boundaries.

5 www.hel.fi/fi/uutiset/kaupungin-hiilijalanjalkilaskuri-ensimmaista-kertaa-kaytossa-sidewaysissa
6 https://apfi.fi/ekologinen-kestavyys/
7 https://pelimetsa.fi/home/
8 https://www.stjm.fi/palvelut-ja-tietoa-yrityksille/hiilineutraali-tekstiiliala-2035-sitoumus/
9 https://www.mediaalantutkimussaatio.fi/ajankohtaista/media-alan-ymparistovaikutukset/
10 https://frame-finland.fi/uusi-kestavampien-kaytantojen-tyokalupakki-nykytaiteen-alalle/

Making use of existing calculators makes sense

It rarely makes sense for organisations to create their own calculator, as there are easy-to-use online calculators with instructions available to everyone in the creative sectors. There are also open online emission databases providing data for organisations' own carbon footprint calculation. Almost all calculators have an internal emissions database, which the calculator uses. The basic data contained in existing calculators provides a groundwork for many of the organisations' own emission factors. Calculators and data sources are listed below. Often even a rough carbon footprint calculation reveals the biggest emission sources, which should be the first ones subject to reduction measures. Resources permitting, organisations can then move on to more detailed calculation and identify more specific actions.

To accelerate sustainability work in the creative industry, the calculators of different sectors should be made available through one website, where it would be easy for industry players to find the suitable one. Instead of creating new calculators, organisations could explore the existing alternatives and find one that suits them best. The carbon footprint calculator for public artwork[11] developed in 2022–23 and the carbon footprint calculator for events[12] can, in competent hands, also be used for other types of calculations.

Sharing information more efficiently through a common website would make it easier for professionals in the creative industries to calculate their emissions, and it would help those new to the industry to focus on the most effective emission reduction measures in their sustainability work right from the beginning. The carbon footprint calculation is often based on previous projects or years of operation. In order to speed up environmental action, organisations should, in addition to calculating their footprint, critically examine their current activities in order to reduce emissions.

11 https://kiertotalous2.turkuamk.fi/julkisen-taideteoksen-ymparistolaskuri/
12 https://www.hel.fi/fi/yritykset-ja-tyo/yritykset-ja-yrittajat/tapahtuman-jarjestaminen/vastuullisuus-tapahtumissa/ymparistovastuu

Carbon footprint calculation provides indicators and goals

Carbon footprint calculation provides good baseline data when an organisation is just starting its sustainability work, and indicators that can be used to monitor progress made. Carbon footprint calculation helps organisations to understand what constitute their emissions, and the results enable them to start planning ways to reduce them.

Carbon footprint of procurement

Procurement accounts for a significant part of the total emissions of creative industries. To promote sustainability, it is important to carefully review and plan procurement to reduce emissions and the consumption of natural resources. The footprint of procurement is often challenging to calculate, but the national strategy requires that when awarding public contracts, consideration must be given to the climate, the circular economy and biodiversity.[13]

The medium-term climate policy plan based on the Climate Act sets emission reduction targets for public contracts. The Finnish Environment Institute,[14] for instance, has listed means of reducing emissions from procurement. Procurement transparency is a considerable challenge and is largely linked to the way calculation is limited. How far into the value chain should the calculation extend and if the emission data comes from subcontractors, how were their calculations prepared?

Uncertainties in carbon footprint calculation

The carbon footprint calculation is practically always based on at least partially evaluated initial data, and the calculation is always indicative, never an absolutely precise result. However, it does offer a good tool for understanding the climate emissions caused by an organisation's activities, helps to pursue reductions systematically and provides data for monitoring progress made.

Considering the wide spectrum of carbon footprint calculators, there are uncertainties regarding the calculation results. Using different initial data and different limitations in calculators can produce very different results, which is why the results of two organisations in the same sector that used a different calculator are not comparable. It would therefore be recommendable to create one sector-specific calculator. It should also be noted that if one of the three scopes of the calculation model is left out, the result becomes distorted.

Another challenge is the fact that players are very differently equipped to prepare a calculation. Smaller players have fewer resources to implement a number of

13 https://www.ymparisto.fi/fi/kierto-ja-biotalous/kestava-kulutus/kestavat-julkiset-hankinnat-ja-investoinnit
14 https://helda.helsinki.fi/bitstreams/ee3c3cb1-b6cd-453f-a604-197fa5e8deef/download

different tools. Calculating the carbon footprint in the creative industry is sometimes regarded as a laborious project, or, if services need to be purchased from an external service provider, expensive in relation to the organisation's resources.[15] Moreover, internal resources are always needed for the collection of data for the carbon footprint calculation performed by an external specialist.

Carbon footprint calculation is only one part of environmental work and carbon footprint calculation does not take into account impacts on nature. Measuring the impact of activities on nature has become commonplace,[16] and it has already been accounted for in some creative industry projects.[17] Indeed, it would be important to look at the big picture of environmental effects instead of focusing only on the carbon footprint calculation.

When the preliminary report of the LuoTo project was prepared, it turned out that several creative sectors felt that rather than accurate calculations they would have welcomed information about concrete actions to take in order to advance their sustainability work. Calculators and indicators were met with mixed feelings: some were happy to see the introduction of tools that worked for the industry, while others considered metrics a wrong step for the creative industries' sustainability work. However, many felt that indicators and calculators reduced greenwashing and pushed operations in the right direction. Calculating the carbon footprint was often considered laborious or expensive, and the comparability and reliability of results was regarded as a challenge.

When asked about tools and indicators, contributors to the report hoped for better comparability, ease of use, accessibility, sector-specific tailoring, consideration of overall sustainability and an opportunity to constantly update data. They also hoped that the tools could be scaled to the needs of different sized organisations, considering the accuracy required and the time resources available.[18]

15 https://www.aalto.fi/sites/g/files/flghsv161/files/2022-11/LuoTo-raportti.pdf
16 https://www.sitra.fi/uutiset/suomalaistutkijat-kehittivat-luontojalanjalkimittarin-yrityksille-pilottihanke-kartoitti-s-ryhman-luontohaitat/
17 https://www.flowfestival.com/flow-festival/sustainable-flow/#tutkimus-ja-uudet-ymparistoratkaisut
18 https://www.aalto.fi/sites/g/files/flghsv161/files/2022-11/LuoTo-raportti.pdf

Requests for financiers

The preliminary report for the LuoTo project and workshops arranged during the project provided a good overall picture of the needs of different sectors regarding carbon footprint calculation. Certain themes and needs were expressed repeatedly across all sectors. These, together with proposed solutions, are listed below.

- Existing calculators with instructions for use should be made available through an open database, for instance a regularly updated website, to allow each organisation to easily find the one that suits them.
- During the green transition, investment in education is needed to help industry players adopt the use of carbon footprint calculators. To prepare calculations, organisations need to learn how to use new tools and time to internalise new practices and procedures.
- To make it easier to identify the biggest emission sources and to enable faster reductions, the results of existing sector-specific calculations should be made available in connection with the calculation tools.
- Support and long-term funding for a joint national emission database is required. The database could be maintained and managed by the Finnish Environment Institute or Natural Resources Institute Finland (Luke).
- To produce comparable results, a sector-specific calculator should be available for each sector. Cross-sectoral use of the existing calculators is an alternative, but it would require further research and proper instructions.
- An interest organisation or a major financier in the sector could also provide sustainability consulting as part of their corporate citizenship. Legislation such as the Contractor's Liability Act and the Public Procurement Act assign many responsibilities to financiers. In the future, the same is likely to apply to ecological responsibilities in their own value chains. It would therefore make perfect sense for financiers to collect, analyse and share knowledge and skills as part of their operations.

Carbon footprint calculation is a way to study the emissions from activities, and to discover the most effective ways to reduce emissions. Calculations can help to identify emission reduction targets and prioritise them. Measures should be targeted at areas with the biggest need of emission reduction, and actions with a significant impact on emissions should be prioritised.

In addition to taking action, it is important to inform internal and external stakeholders of the carbon footprint calculation and use communication as a means to influence their activities, too. The expressiveness of creative sectors can make a big impression on professionals, decision-makers and influencers in other sectors. To achieve real change, everyone needs to be involved!

10 Carbon footprint calculators, tools and guidebooks

Environmental systems and tools

Ecocompass **participation fee**
Environmental system.

WWF Green Office **participation fee**
Environmental system for offices.

Julie's Bicycle – Creative Climate Tools **(EN)**
Tools intended for cultural sectors to measure and reduce environmental impacts.

Guides

Nordic Green Roadmap for Cultural Institutions **(EN)**
A green roadmap for Nordic cultural institutions, published in September 2023 as part of the Nordic Council of Ministers' Sustainable Living programme (2021–24).

Climate Outreach > Resources **(EN)**
Guides and reports for effective, science-based climate communication.

Communicating on Climate Change **(EN)**
UN guide for climate communication.

Cultural sustainability as part of the concept of sustainable development **(EN)**
The cultural sustainability section of the University of Helsinki's **Introduction to Sustainability** MOOC course.

Greening Arts Practice Guide **(EN)**
A guide for artists on how to reduce the environmental impact of their work.

Greenhouse Gas Protocol **(EN)**
The most common emission calculation and emission management standard. Tools, guides and materials.

ISO 14000 Family Environmental Management **(EN)**
Environmental system standard.

Kestävä kasvatus – kulttuuria etsimässä (Sustainable education - in search of culture)
Guide of the Association of Cultural Heritage Education in Finland (2013.

Sustainable development in children's cultural activities
A guide to sustainable development in children's culture.

Culture for all
Information and tools for promoting cultural services that are inclusive, accessible and equitable.

More ethical electronics
Website of the Pro Ethical Trade Finland (Eetti).

Energy-efficient data centre
Guide published by Sustainable Development Company Motiva (2011).

Environmental criteria for IT equipment and server rooms
Guide published by Sustainable Development Company Motiva.

Open ilmasto-opas (Climate guide for teachers)
A climate guide for subject teachers, with separate chapters on visual arts, music, and arts and crafts.

Emissions database for construction in Finland
Service provided by the Finnish Environment Institute.
Contains the CO_2e data of construction products.

100 ways to be smart and sustainable - Sitra
A toolkit with good practices from various sectors for implementation and for communication purposes.

Ecological guidelines for the network of the Finnish cultural and academic institutes **(EN)**
Guidelines published by Finnish cultural and academic institutes on eco-friendly practices.

Ecoinvent Database **(EN) user charge**
Environmental database for organisations based on life cycle analysis.

Carbon footprint calculators

Lifestyle test
The Finnish Innovation Fund Sitra's tool for calculating an individual's carbon footprint.

Hiilifiksu (Carbon-smart) carbon calculator for associations
University of Helsinki's carbon footprint calculator for organisations.

Carbon neutral Finland > calculators
Several emissions calculators, including for energy and catering, available on the carbonneutralfinland.fi website.

Climate diet
The Finnish Environment Institute's calculator on the carbon footprint of lifestyles.

Y-Hiilari Carbon Footprint Tool for companies
Finnish Environment Institute's carbon footprint calculation tool for companie.

The Networked Condition **(EN)**
Carbon footprint calculator of digital artwork or events.

Sector-specific guides and calculators

Architecture

- The Association of Finnish Architects' Offices (ATL) sustainability guide **for members**
- Circular Buildings Toolkit **(EN)**
- Perspectives on ecological construction podcast
- EKO-SAFA – the Finnish Association of Architects SAFA
- E-factor calculator 2.0 (procured energy)
- Climate-resistant town planning tool
- OOPEAA JOKOTAI Material Impact Screener **(EN)**
- Emissions database for construction in Finland
- Sustainability criteria of the Finnish Association of Architects SAFA for architectural competitions
- Finnish Association of Landscape Industries' framework for sustainable landscape construction
- Finland's environmental administration's tools for evaluating the climate effects of town plans

Film and audiovisual industry

- Albert – environmental tools and materials **(EN)**
- Green cinemas: a guide on how to run more ecologically sustainable cinemas
- Ekosetti – A guidebook to sustainable production in Finland **(FI & EN)**
- Occupational safety guide for the film and TV production industry
- Good Energy Stories: Storytelling for Today's Climate **(EN)**
- Lapland production guide and Code of Conduct **(EN)**
- Pathfinder guidelines for responsible filmmaking with the Sámi people and Culture **(EN)**
- Accessibility guidelines for cinemas
- The first statistics on the environmental impact of Finnish audiovisual productions in 2022 (APFI)
- The Finnish Film Foundation's intimacy guidelines for camera work
- Working with an intimacy coordinator
- Guidelines of the Trade Union for Theatre and Media Finland, Teme for the prevention of sexual harassment in the film and TV industry
- Women in film & television Finland (WIFT): tool for equal treatment

Performing arts

- The Theatre Green Book in Finnish
- Trade Union for Theatre and Media Finland's Ethical Guidelines for Performing Arts
- Ecological wardrobe practices of the Theatre Academy
- Ecoscenography website of researcher Tanja Beer

Literature, publishing and libraries

- ClimateCalc tool for evaluating the carbon footprint of printed products, packaging and printing houses
- Libraries' role in environment and climate activities for young people
- Green library > Guides and communication material
- Resources of IFLA, the International Federation of Library Associations
- Boldly sustainable change in the National Library of Finland 2021–2030

Visual arts

- Art/Switch: materials and courses for the ecological sustainability transition **(EN)**
- The Circwaste research project develops a toolfor calculating the carbon footprint of art productions
- Gallery Climate Coalition **(EN)**
- Helsinki International Artist Program (HIAP): Ecological travel to and from Helsinki **(EN)**
- IHME Helsinki Advisory Board in interview: Paula Toppila
- IHME Helsinki's Executive Director and curator Paula Toppila's lecture on ecologically sustainable curating
- Environmental effects of public works of art - Calculation tool and instructions
- Earth, wind, but not much fire – the low-emission energy system of the Mustarinda house
- The Green Palette project: tools for tracking environmental impacts
- Toppila, Paula (2022): **Taiteen ja taideinstituution merkitys kestävyysmurroksessa** (*The importance of art and art institutions in the transition to sustainability*). In **Kestävyyden avaimet**. **Kestävyystieteen keinoin ihmisen ja luonnon yhteiseloon**. (*Keys to Sustainability. Enabling coexistence between man and nature through sustainability science*). Ed. Tarja Halonen, Kaisa Korhonen-Kurkki, Jari Niemelä and Janna Pietikäinen, Gaudeamus. pp. 51–53

Fashion and textile industry

- Ekokumppanit (EcoFellows) textile guide
- FINIX – sustainable textile systems research project > Resources **(EN)**
- Finland as a forerunner in sustainable and knowledge-based textile industry - Roadmap for 2035 **(EN)**
- Carbon neutral textile industry 2035 commitment (Finnish Textile & Fashion)
- Shades of green tool for communicating the sustainability of garments **(EN)**
- Finnish Textiles and Fashion's textile fibre guide
- A designer's guide to circular economy clothing design (LAB University of Applied Sciences)
- Telaketju cooperation network of Turku University of Applied Sciences
- USEtox®: chemical toxicity assessment mode **(EN)**

Design

- The Association of Plastic Recyclers: APR Design® Guide plastics database **(EN)**
- Report: The changing relationship between people and goods (Sitra) **(EN)**
- Circular Design Toolkit **(EN)**
- Design + Sustainability report (Aalto University)
- Towards circular economy through design
- Ekodesign – a roadmap for the public sector and private businesses (Finnish Environment Institute)
- Green Design: solutions for sustainable development, environmental responsibilityand circular economy
- KISU - A designer's guide
- Sustainability Guide **(EN)**
- Systemic Design Framework (Design Council) **(EN)**

Museums and cultural heritage

- Sustainable development action plan 2025
- Manual for museum shops
- Publications of the Ki Culture sustainability organisation
- Living heritage and the wheel chart for sustainability
- The Climate Promise of Museum in Southwest Finland

Music

- ELMA.live – tools and materials for promoting sustainability
- Safe at every stage - guidelines for making the Finnish music industry safe for all
- Sustainable music industry toolkit project (KEMUT)
- Viileä musiikki (*Cool music*) - live music climate roadmap
- Music industry Climate Pack – opas ilmastotoimista **(EN)**
- Green Ochestras Guide (Julie's Bicycle) **(EN)**
- Scottish Classical Music Green Guide **(EN)**

Game industry

- A Drawdown-Aligned Framework for the Gaming Industry
- The Finnish Game Industry Code of Conduct (Neogames) **(EN)**
- Game Industry Net Zero Snapshot 2022
- Green Games Guide **(EN)**
- Play Create Green
- Playing for the Planet
- Checklist for game studios to reduce carbon dioxide emissions (Neogames) **(EN)**
- CO_2 emission calculation model (Neogames)
- Untangling the carbon complexities of the video gaming industry.pdf **(EN)**

Events and festivals

- How to organise a zero carbon event – a handbook for sustainable events
- Carbon footprint calculator for City of Helsinki events
- European Green Festival Roadmap (Yourope) **(EN)**
- Future Festival Tools learning portal **(EN)**
- CO_2 calculator for events (Tapaus/Liwlig)
- Sustainable events (Manchester City Council) **(EN)**
- Visit Finland's calculator for the tourism industry
- OpenCO2.net's free calculators

11 ABC of sustainability terms

Ecological sustainability transition
Rapid adaptation in society to the conditions of ecological sustainability, i.e. to the limits of the environment's carrying capacity. The essential goal is to combat catastrophic climate change and stop biodiversity loss.

Sustainable development
Meeting the basic needs of current generations in a way that does not undermine the possibility of future generations to meet their basic needs.

Ecological sustainability
Adapting human economic and material activity to the Earth's carrying capacity with a focus on the preservation of biological diversity and the functioning of ecosystems.

Social sustainability
The conditions for well-being are passed on from current generations to the next. Central to social sustainability is addressing issues such as population growth, poverty, food shortages, health problems, gender inequality and lack of education, thereby supporting ecological and economic sustainability.

Economic sustainability
The economy is not based on the depletion of natural resources or indebtedness. A sustainable economy is a key condition for the basic functioning of society and the achievement of social and ecological sustainability.

The cultural dimension of sustainable development
Cultural sustainability is the fourth dimension of sustainable development. It means nurturing cultural heritage, supporting dynamic cultures and passing them on to the next generations. Cultural sustainability also aims to promote cooperation between cultures, which requires respect for everyone's rights.

Climate change
As a result of emissions from human activity, the Earth's climate has warmed by more than one degree. A warming of two degrees will most likely result in catastrophic climate change which will cause public health threats, decline in food production and species loss, thereby posing a significant risk to the majority of the world's population and natural environment. Climate emissions are caused by unsustainable energy use, land use and land use changes, lifestyles and consumption habits.

Climate emission
The release into the atmosphere of greenhouse gas that causes global warming. Many man-made gases have a climate-changing impact. Carbon dioxide equivalent (CO_2e) is used as a metric measure used to compare the emissions from various sources.

Carbon neutral
A balance between emitting carbon and absorbing carbon from the atmosphere. Finland's goal of being carbon neutral in 2035 is included in the Climate Act. An organisation's carbon neutrality is assessed internally: the emissions of a carbon neutral organisation are at most equal to its carbon sequestration.

Carbon footprint
Climate emissions from human activity. Carbon footprint expresses the climate impact of a person, a group or an organisation.

Climate handprint
According to a decree which is being prepared in conjunction with the new Construction Act (751/2023), a climate handprint is only produced in a situation where a positive climate impact could not be achieved without a specific action or project. The handprint can be deemed as

the potential to reduce emissions, which may actualise. This is not an established definition.

Carbon wisdom
Activities to avoid and reduce climate emissions. The operating environment, which is changing as a result of the climate goals, requires actions from companies and organisations such as carbon footprint monitoring and systematic reduction of emissions.

Emissions compensation, i.e. carbon offsetting
To offset a climate emission, the equivalent amount of carbon needs to be sequestered elsewhere. Compensation should be the last resort and to be undertaken only if it is impossible to prevent emissions.

Biodiversity loss
Biodiversity and the ecosystems essential for human life are rapidly disappearing as a result of human activity. Biodiversity loss is caused by the use of natural resources, pollution and climate change.

Biodiversity
A diversity of ecosystems, species, individuals and genes. The rich diversity makes nature better equipped to withstand disturbances.

Natural resources
Elements of nature that can be used. Non-renewable natural resources are depleted as they are used (e.g. sand, peat and neodymium). Renewable natural resources can also deplete if their use exceeds their renewal rate (e.g. timber, groundwater). Virgin natural resources come from primary production and are therefore not recycled. Reducing the consumption of natural resources is the most important way to stop biodiversity loss.

Ecological footprint
A surface area in nature needed to produce the natural resources consumed by a person or a group of people, and to process waste. The ecological footprint is used to evaluate the environmental impact.

Ecological compensation
Harm caused to nature is compensated by correspondingly improving the state of nature elsewhere. Compensation should be the last resort and to be undertaken only if it is impossible to prevent the harm.

The sharing economy
An economic model in which sharing and services are prioritised over private ownership.

Circular economy
In a circular economy, materials stay in circulation for a long time, and they are used efficiently and sustainably. Products are shared, rented, repaired and recycled, and manufacturing is servicified.

Energy efficiency and eco-efficiency
Improving the efficiency of energy use or natural resources consumption, which results in a greater benefit from the same consumption unit.

Environmental work
Systematic work carried out by an organisation to achieve ecological sustainability. The focus is on carbon neutrality and mitigating biodiversity loss.

Environmental system
The environmental system is a digital tool used to monitor, control and develop the environmental impact and work of an organisation.

Environmental responsibility
Environmental responsibility means understanding the impacts of the organisation's activities on the climate, nature and health, as well as reducing the negative effects of such activities.

Ecosocial education
Ecosocial education means fostering human growth to ensure cultural sustainability. Ecosocial education encompasses the understanding of our dependence and our impact on our environment, as well as our rights and responsibilities towards the nature around us. An ecosocially educated person strives for moderation and equality, and fully embraces their responsibility towards other people and the environment.

Environmental handprint
Positive environmental impact achieved by reorganising activities.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