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*CORRESPONDENCE
Julia Glesner,
julia.glesner@fh-potsdam.de

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Ecological sustainability in arts organisations—on the potentially limited impact of carbon footprint reports in ecological transformation

Julia Glesner *

Department of Arts Management and Cultural Work, University of Applied Sciences, Potsdam, Germany

This paper examines the role of carbon footprint reports in fostering ecological transformation within the European cultural sector, situating the discussion within the frameworks of Sociological Neo-Institutionalism and Cultural Institution Studies. The study investigates how cultural organisations can pursue climate neutrality whilst navigating systemic and operational challenges. The pilot project on carbon footprinting by the German Federal Cultural Foundation serves as the primary case study, examining the potential of such reports as instruments for sustainability strategies. The findings indicate that direct emission reductions are often constrained by the systemic limitations of arts organisations, with critical leverage points located at national and international levels. The paper identifies emerging trends of institutional isomorphism, where carbon footprint reports are at risk of becoming coercive mandates instead of voluntary sustainability practices. Ultimately, although carbon footprint reports are essential for initiating sustainability efforts, realising genuine ecological transformation necessitates wider systemic and political engagement beyond standardised methodologies. This paper provides insights into the complexities involved in aligning the missions of arts organisations with ecological objectives, advocating for nuanced approaches that acknowledge the sector's distinct cultural and social role.

KEYWORDS

ecological transformation, ecological sustainability, carbon footprint reports, arts organisations, sustainability practices

Introduction

Through both practical initiatives and research-driven projects, the European cultural sector has actively engaged in reflecting on its own operational conditions and processes in alignment with the "duty to future" (Jonas, 1993 [1979], 84), as articulated in Hans Jonas' imperative of responsibility.

> "Act so that the effects of your action are compatible with the permanence of genuine human life on Earth." (Jonas 1984 [1979], 11)

Alliances have emerged, shaped by the recognition of shared challenges as well as the awareness of shared uncertainties (Janssens and Fraioli, 2022, 6f., 45; Engelhardt, 2022; European Theatre Convention, 2021). In this "practitioners" discourse" (DeVereaux, 2009), "radical" commitments (Engelhardt, 2022, 96–99) for a transformation of the entire sector were formulated in a highly differentiated manner. Among them are voices that point to other industries, whose infrastructures and technologies clearly cause higher emissions, demand those industries' responsibility, but are in turn exposed as an attitude of "whataboutery," as a rhetorical strategy of deflection or relativisation (Calvano, 2022, 28). Rodrigues states, "involving the arts and culture in environmental efforts makes sense insofar *as it is a sector as any other*" (Rodrigues Vânia. 2024, 7; emphasis by the author), by also – and quite essentially – asking how the ecological operation of arts organisations can be achieved without adopting "the socio-economic background provided by neoliberal capitalism" (Rodrigues Vânia. 2024, 8). Without ignoring the differences between central and (semi-) peripheral countries within Europe, due to their privileges Europeans ethically bear a "particular historic responsibility" (Engelhardt, 2022, 8) toward the Global South. In this highly complex situation, it is necessary to join all interdisciplinary forces to integrate ecological sustainability as expanded mission of arts organisations and to contribute to concrete and effective solutions for an ecological transformation of the cultural sector. This paper aims to contribute to this objective from the perspective of organisational theory, more precisely: of Sociological Neo-Institutionalism, with a specific topic, namely, to critically reflect the potential of carbon footprint reports.

Developing a carbon footprint report is generally considered a starting point for organisations to develop a sustainability strategy (German Federal Cultural Foundation (GFCF), 2021, 4; Calvano, 2022, 31). The first carbon footprint assessments were already carried out in the 1990s, but standardised carbon footprint reports were only systematically developed and disseminated in the early 2000. A carbon footprint report is a comprehensive assessment that quantifies the total GHG emissions caused directly and indirectly by an entity, product, or activity, typically measured in carbon dioxide equivalent, to evaluate environmental impact and inform mitigation strategies (World Business Council for Sustainable Development and World Resources Institute (GHG). The Greenhouse Gas Protocol, 2004). Such reports typically cover emissions from energy use, transportation, production processes, and supply chains, helping identify opportunities for emission reduction, hence improved efficiency, and sustainability improvements (Leibing and Blaim, 2021, 8–13). Although other GHG, such as methane or nitrous oxide, are also converted into so-called CO_2 equivalents, "carbon" has become the standard term for these reports, as it is the most well-known and most frequently emitted greenhouse gas.

The United Kingdom and France were early adopters of the report at a cultural policy level. In 2012, Arts Council England (ACE) became the first government-funded body responsible for funding cultural organisation to include environmental reporting in the funding agreements of its major programmes (ACE, 2015, 4). Since then, funded organisations have been required to report on their energy and water consumption and have up-to-date environmental strategies and action plans. The "Stratégie ministérielle de développement durable," developed by the French Ministry of Culture in 2011, aimed to promote sustainable development in the cultural sector. In line with the "Stratégie nationale de développement durable 2010–2013," it included, among other measures, carbon footprint reports for the cultural sector (MCC, 2014). Germany followed in 2019, when the Foundation initiated a pilot project on carbon footprint in cultural organisations.

To reassess the potential of carbon footprint reports for reaching the goal of a carbon-neutral organisation, this paper draws on the results of a project initiated by the German Federal Cultural Foundation (hereinafter "the Foundation"). The project supported public arts organisations from a range of artistic disciplines in measuring their GHG emissions and calculating their carbon footprints for that year. Its aim was to test a carbon footprinting model tailored to the cultural sector, offering a scalable tool for other organisations to achieve climate neutrality (German Federal Cultural Foundation (GFCF), 2021)[1].

In the following sections, this paper first outlines the scope of the Foundation's study and its data basis and then introduces Cultural Institution Studies and Sociological Neo-Institutionalism as the theoretical and methodological framework for this study. Expanding on this basis, the research design is outlined, utilising triangulation through the integration of a meta-analysis of the Foundation's report data with qualitative interviews. Framed and prepared in this way, the findings of this study are presented before being concludingly discussed.

1 The Foundation translates the title of the project "Klimabilanzen in Kulturinstitutionen" with the term institution: "Carbon Footprinting in Cultural Institutions". Since the following focuses on the theoretical framework of Sociological Neo-Institutionalism with its distinction between the terms "organisation" and "institution," this paper takes the liberty to translate the English title of the Foundation's project by using the term organisation. – Note: Literature originally published in German has been translated using DeepL.

The study: "carbon footprinting in cultural organisations"

The Foundation enabled 19 cultural organisations from the publicly funded cultural sector to measure their GHG emissions and to calculate their individual carbon footprint for the year 2019. The project aimed to test a carbon footprinting model tailored to the cultural sector, offering a scalable tool for other organisations to achieve climate neutrality. The participating organisations not only obtained deepened knowledge with respect to their GHG emissions. They also received climate coaching to encourage in-house knowledge transfer on ways to improve their climate-impacting activities (Brünger, 2022, n.p.). A central goal was to explore how environmental sustainability could be promoted on a broader scale within the Foundation's funding framework in collaboration with participating organisations.

> "New key figures beyond occupancy rates and income quotas are being considered; alternative reporting standards, carbon footprints and instruments for monitoring ecological success. In short: linking the allocation of funding with aspects of ecological sustainability." (Brünger, 2022, n.p.)

The report on the Foundation's study documented the project's progress, presented the arts organisation, its balance limits and the results, both quantitatively and qualitatively, as well as actions and future measures recommended by the arts organisations (German Federal Cultural Foundation (GFCF), 2021, 16).

To be able to assess the significance of the decisions on balance limits for subsequent comparability, it is necessary to understand their definition. Defining the balance limits implies first determining which organisational units, e.g., an exhibition space or the lifecycle of a production, are included in the report and second identifying the direct and indirect emissions associated with this unit. This decision – to define the balance limits – is directly linked to results in the so-called three scopes. In a carbon footprint report, the emissions are categorised as scope 1, 2 and 3 emissions by the GHG protocols: Scope 1 includes direct GHG emissions from on-site fuel-burning processes, such as heating plants, vehicles, and refrigerant leaks. Scope 2 covers indirect emissions from electricity and district heating use, whereas scope 3 includes all other indirect emissions from upstream and downstream activities, mainly business trips, commuting, and goods transport, often the largest share in non-production facilities; scope 3 is again divided into obligatory (e.g., staff commutes, business trips or waste) and optional emissions (e.g., visitor mobility) (German Federal Cultural Foundation (GFCF), 2021, 10, 18). Due to their tendentially higher proportion, the emissions in scope 3 are of particular importance when it comes to the question of which measures achieve an ecological impact. One example from each of the different domains will illustrate the relation between defining the balance limits and the results in the three scopes: *Stadtbücherei Norderstedt*, a municipal library, e.g., "excluded the media and its transport to the libraries, staff commutes and the emissions generated by the users in the libraries", a decision that led to scope 3 emissions of 46%, a relatively low result (German Federal Cultural Foundation (GFCF), 2021, 53). *Museum Folkwang*, in turn, focused "on facility management and selected museum operational processes" while excluding "emissions from gastronomy and visitor travel," a decision that explains why emissions in scope 1 reached 94% whereas in scope 2 emissions reached only 2% and in scope 3 only 4% which severely limits comparability to other museums (German Federal Cultural Foundation (GFCF), 2021, 39). And *Schaubühne am Lehniner Platz*, one of the major ensemble and repertory theatre in Berlin, excluded its external locations, but collected data on mobility which highly contribute to emissions in scope 3 so that the results for scope 3 achieved a high reliability (German Federal Cultural Foundation (GFCF), 2021, 43). The report visualised the results for each organisation as shown in Figure 1 for *Schaubühne am Lehniner Platz*.

The pilot group represented a range of artistic disciplines – visual arts, performing arts, literature, music, and commemorative culture – and included organisations of varying sizes, local contexts, and levels of experience with sustainability practices. Table 1 summarises the 19 participating cultural organisations by domain and characterises their type. Due to the quantitatively high significance of scope 3 emissions, where the organisations decided the recording on a case-by-case basis, the table also comments on the results in this area, and in some cases due to their significance also in scope 2. The table is sorted by domain and in alphabetical order. Buildings are described as "historical" if built before World War II.

Regarding the results, the Foundation recommended "to compare an organisation with itself – over the course of several assessments in order to check whether targets have been achieved and measures have taken effect" (Brünger, 2022, n.p.). Despite "the justified interest in comparing organisations with one another, the absolute figures should (. . .) be treated with caution and contextualised" (Brünger, 2022, n.p.). However, since the artistic fields and disciplines differ in their operational logics, e.g., between a museum with its own collection and a drama or a ballet company, the comparability is also limited. Nevertheless, according to Sebastian Brünger, project manager at the Foundation, a "cross-organisational trend" was recognised:

> "The main factors in most climate footprinting are the air conditioning of the buildings and the mobility surrounding the operation – here in particular audience mobility, business trips and transport logistics such as loan transport in museum practice" (Brünger, 2022, n.p.).

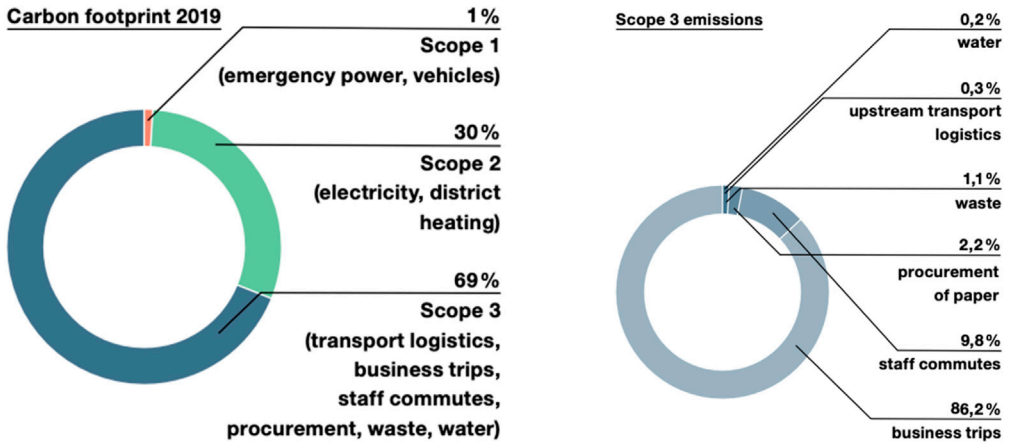

FIGURE 1
Schaubühne am Lehniner Platz: Carbon Footprint Results (German Federal Cultural Foundation (GFCF), 2021, 43).

In addition, the Foundation's report summarised "proposals, measures and ideas for future steps" (German Federal Cultural Foundation (GFCF), 2021, 24). In relation to the three "main factors" identified by Brünger (2022), n.p. – air conditioning, audience mobility, business trips and transport logistics/loan transport in museum practice – the measures shown in Table 2 were recommended.

The starting point for the meta-analysis – the initial part of the research design of this study – are, firstly, the main factors as identified by Brünger, secondly, the aggregated results (see Table 1) and, thirdly, the corresponding measures (see Table 2). Briefly summarised, these data indicate that:

- In addition to the identified main factors of air conditioning, transport logistics, audience mobility, and business travel, the age of the buildings, as well as their state of maintenance and degree of renovation, also contribute significantly to the level of emissions.
- The factors grouped in scope 3 have the greatest impact on emission levels. At the same time, the data availability in this area of the study is the most inconsistent. Mobility and logistics particularly seem to have a significant influence here.

Research design

Cultural institutions studies

Methodologically this paper argues within the interdisciplinary Cultural Institutions Studies framework. This framework examines how cultural practices, social semantics, economic conditions, and their related theories intersect at the levels of production, mediation, and reception of cultural goods and services (Hasitschka et al., 2005; Kirchberg and Zembylas, 2025, 159). At its core is the term institution, which, following Sociological Neo-Institutionalism, is understood as encompassing "normative ideas, latent beliefs, unconscious routines, and unchallenged practices" (Kirchberg and Zembylas, 2025, 138) that underpin organisational structures. The approach "interprets artistic practices as a mutual result of micro-, meso- and macroconditions" (Kirchberg and Zembylas, 2025, 163). Cultural Institutions Studies frames cultural management as a process of translating values amidst the competing priorities of economic and aesthetic-cultural objectives (Tschmuck 2020, 123–126).

Sociological neo-institutionalism

The core idea of Sociological Neo-Institutionalism is that organisations are shaped not only by rational decisions or economic efficiency but primarily by social, cultural, and institutional contexts. Sociological Neo-Institutionalism understands organisations as structured entities, "groups of individuals bound by some common purpose to achieve objectives" (North and Douglass, 1990, 5), such as businesses, governments, or non-profits, that operate within a set of institutional norms, rules, and cultural frameworks. Institutions, on the other hand, are broader, socially constructed systems of norms, rules, and practices that shape behaviour. They are the enduring frameworks within which organisations and individuals operate, influencing how they interpret and respond to their environments. Institutions include formal laws, informal norms, and shared cultural understandings (Brunsson, 2020, 54f., 57f.).

Sociological Neo-Institutionalism assumes that institutions shape and constrain individual and organisational behaviour by providing

TABLE 1 Categorisation of Participating Organisations (sorted by domain and in alphabetical order; definition of "historical/modern building": constructed before/after World War II).

Domain	Organisation	Type	Comments
Libraries	Stadtbibliothek Berlin-Pankow	municipal library with eight branches; housed in historical and modern buildings	scope 2: 87% of all emissions on electricity and district heating scope 3: no data on visitor mobility
	Stadtbücherei Norderstedt	municipal library with four branches housed in modern buildings	scope 3: 46% of all emissions; no data on transport logistics of media as well as mobility of staff and visitors
Museums and Exhibitions Venues	Kunstverein Hannover	art association with international exhibitions, housed in historical building	scope 2: 57% of all emissions on electricity and district heating scope 3: 43%
	Lenbachhaus München	museum with international exhibitions, housed in both a historic and a modern building	scope 3: 50% of all emissions, esp. on transport logistics
	Museum Folkwang	museum with international exhibitions, housed in modern building	scope 1: 94% of all emissions on heating, fossil energy and refrigerant losses scope 3: 4% of all emissions (no data on mobility of visitors)
	Staatliche Kunstsammlungen Dresden	15 museums, partly housed in historical buildings; Albertinum (modern building) and Kunstgewerbemuseum (Baroque palace) were examined	data differ depending on the building scope 3: emissions by transport logistics and trips are high in both cases
	Zentrum für Kunst und Medien Karlsruhe	multi-genre art and media exhibition venue; programme with focus on exhibitions, partly also events; housed in historical building plus modern extension	scope 3: 95% of all emissions, no data on transport logistics of art works
Performing Arts and Music	Deutsche Staatsphilharmonie Rheinland-Pfalz	touring orchestra; no fixed venue	scope 3: 87% of all emissions
	Kampnagel Hamburg	international cultural production venue; no permanent ensemble	scope 3: 32% of all emissions (no data on international artists traveling and mobility of visitors)
	Mousonturm Frankfurt/M.	international cultural production venue; no permanent ensemble	scope 3: 58% of all emissions (including data on international artists traveling, no data on mobility of visitors included)
	Saarländisches Staatstheater	multi-genre theatre; ensemble and repertory theatre; historical building, three more venues	scope 3: no data scope 2: 97% of all emissions collected on electricity and district heating
	Schaubühne am Lehniner Platz Berlin	drama theatre; ensemble and repertory theatre; housed in historical building	scope 3: 69% of all emissions (no data on mobility of visitors) in scope 3: 86% on business trips and guest performance tours
	Staatsschauspiel Dresden	drama theatre; ensemble and repertory theatre; historic buildings	scope 3: 62% of all emissions subcategory mobility in scope 3: 40% of all emissions (56% of this amount: visitor travel)
	Staatstheater Darmstadt	multi-genre theatre; ensemble and repertory theatre; housed in modern building	scope 3: 52% of all emissions (79,5% of this amount: visitor travel)

frameworks of norms, values, and rules. It emphasises that these institutions are socially constructed and evolve over time, influencing how entities understand and respond to their environments. Sociological Neo-Institutionalism argues that organisations conform to these institutional pressures not only for efficiency but also to gain legitimacy and maintain their social status within their environment (Colyvas and Powell, 2006, 308).

As a result of that endeavour to acquire and secure legitimacy which is a core concept of Neo-Institutionalism, similar structures and practices often emerge across different organisations, a process that DiMaggio and Powell (1983) described as isomorphism, one of the central insights of institutional theory. Key mechanisms of institutional influence include coercive, mimetic, and normative isomorphism, which lead organisations to adopt similar structures and practices over time. This perspective emphasises how institutionalised practices become taken for granted, often persisting even when they are not the best solutions (DiMaggio and Powell, 1983, 150–152).

TABLE 2 Recommended Measure for the Main Factors identified by Brünger (2022).

Scope	Factor	Measures
1	air conditioning	check for high losses of refrigerants in the air conditioning system, substitute with climate-friendlier refrigerants
		assess possible use of absorption cooling unit
3	audience mobility/visitor travel	conduct visitor surveys to learn where improvements can be made
		Install e-auto charging stations in parking lot
		Include public transport ticket in the price of admission to events
3	business trips (incl. service provider, artists etc.)	establish internal criteria for more environmentally friendly travel
		establish approval process for air travel
		make mobile work possible for longer train trips
		arrange business trips with fewer people, look into partially remote solutions
		CO_2 compensation for flights
		book accommodation in green hotels
		establish guidelines for guests and speakers
		plan and facilitate longer visits
		promote cooperation between institutions to combine multiple events
		collaborate with environmentally conscious artists
		avoid air travel, support "slow travel"
	transport logistics/loan transport in museum practice	better communication and coordination with other organisations and partners with regard to art logistics
		use rail freight transport whenever possible
		record transport data
		assess packaging practices for artworks

Within this framework, the field in which public museums, theatre companies and libraries in Germany operate can be described as an institutional one. It is strongly shaped by public funding from local, regional and federal authorities, legal frameworks, and cultural policy guidelines. Key actors include cultural administrations and funding organisations on all federal levels (*Kulturstiftung der Länder*, *Kulturstiftung des Bundes*), trade unions (*ver.di*, *ddb beamtenbund und tarifunion*, *Genossenschaft Deutscher Bühnenangehöriger among others*), professional associations (*Deutscher Museumsbund*, *Deutscher Bühnenverein, Deutscher Bibliotheksverband*), and political decision-makers, all of whom influence financial and structural conditions. This field is characterised by coercive, mimetic, and normative isomorphism: funding requirements and collective agreements set standards (*TVöD*, *TVL*, *Normalvertrag-Bühne*), successful models are replicated, and formal training programmes shape artistic and managerial practices. As a result, stable yet path-dependent structures emerge, which can both enable and constrain innovation.

It is in this sense, that the research questions for this paper is to be understood: What institutional logics can carbon footprint reports lead to?

Meta-analysis of the study's data

A meta-analysis typically combines and summarises the results of several independent studies on a specific topic or research question (Bortz and Döring, 2006, p. 672). For this study, the term is adapted:

- The first step of the meta-analysis asks to what extent arts organisations can use the key findings for reducing emissions.
- The second step of the meta-analysis compares the results with relevant statements of the "practitioners' discourse" (DeVereaux, 2009) of libraries, museums and theatre companies on the European level.
- Finally, the third step of the meta-analysis examines what the findings imply for the mission of arts organisations.

With this approach, the meta-analysis aims to enrich and expand the perspective offered by the Foundation's study, fostering a more comprehensive discussion.

Qualitative interviews with members of the participating organisations

After conducting the meta-analysis as the initial phase of the research design for this study, two qualitative interviews were carried out with employees from theatre companies that had participated in the study, comprising the second phase. The interviews aimed to achieve:

- Firstly, a retrospective evaluation of both the process and results of the pilot study,
- Secondly, an assessment of the current status quo within the organisations,
- And thirdly, a reflection on the reactions of funding bodies to the study's findings.

Given that operational logistics can vary significantly between organisations across different domains – such as between a theatre company like *Staatsschauspiel Dresden* and a library like *Stadtbücherei Norderstedt* (both of which participated in the pilot study) – the decision was made to include two organisations from the same sector. The theatres were specifically chosen to provide insights into sector-specific operational logistics, which can differ significantly between domains. This variability between organisations highlights the need to focus on a particular sector to gain a more comprehensive understanding of its unique challenges and practices. The interviewees requested anonymity for the further use of the results. Within the seven organisations from the fields of music and performing arts that participated in the study, the selected for the interviews are representative – inasmuch as this term can be used given the number of cases – in terms of scope and outcomes during the pilot study. The qualitative interviews conducted were guided by a framework emphasising three main themes, contributing to an understanding of how theatre companies retrospectively evaluated the project, responded to footprint reports, and positioned themselves in relation to funding bodies on this topic. Conducted in 2024, these interviews constitute the latest documents in this study, each lasting approximately one and a half hours, and were analysed using Mayring's content analysis method (Mayring, 2022) based on transcripts.

Findings

Findings of the meta-analysis

Direct influence only possible to a limited extent

The initial phase of the meta-analysis investigates how effectively arts organisations can leverage key findings to reduce emissions, focusing particularly on air conditioning and guest mobility. Here, it becomes apparent that significant emissions drivers cannot be directly influenced as autonomous decisions are only possible to a limited extent.

This applies especially for the field of museums where air conditioning and the state of building maintenance on the one hand and air conditioning and international standards in the loan traffic of artworks on the other hand are intricately interconnected:

- Air conditioning and international standards in the loan traffic of artworks: Museums can only participate in the international loan traffic of artworks if they demonstrably comply with the high standards required for the climate control of the artworks that emerged after the Second World War (Fleck, 2023, 139). Depending on the size of the museum and the efficiency of the systems, this can lead to considerable energy consumption, particularly in older buildings with less effective insulation, increasing CO_2 emissions. International standards and regulations for loan traffic can furthermore require demanding packaging and transport conditions that add to transportation emissions, such as specific packaging materials or additional cooling during transit. At the same time, optimised transport logistics, such as consolidated shipments or climate-friendly transport methods, could minimise emissions. A comprehensive understanding and coordinated strategy that consider the mutual influences of these factors can help a museum reduce overall emissions and operate more sustainably.

- Air conditioning and the state of building maintenance: In older or heritage buildings, there is a complex relationship between the building's condition and energy consumption by air conditioning, with the state of maintenance playing a central role. Poor insulation in these buildings requires air conditioning systems to use increased energy to regulate room temperatures, thereby raising energy consumption and CO_2 emissions. The efficiency of air conditioning is directly influenced by the state of the building's insulation and sealing. Furthermore, the architecture of older buildings can significantly alter air circulation, impacting the performance of air conditioning systems. Optimised air circulation can make air conditioning operations more favourable. A well-maintained condition, coupled with thoughtful renovations, has the potential to dramatically reduce energy consumption and associated emissions However, in heritage buildings, structural constraints, e.g., the consent of the funding bodies, and preservation regulations as well as budgetary restrictions often hinder the installation of modern, energy-efficient air conditioning systems, leaving less efficient old systems in place that cause higher emissions. Implementing energy retrofit measures

can significantly enhance efficiency by improving insulation and introducing advanced technologies.

Many museums built around 1800, as well as numerous museums newly constructed or expanded in the 20th century, which rely on strict indoor-outdoor climate separation through air conditioning systems, are impacted by this situation. The study reflects this issue: Among the 19 participating organisations, most are either entirely or partly located in historic buildings – or their modern structures also require restoration (see Table 1). While many museums are focused on enhancing the efficiency of climate control systems, organisations often reach their limits with such efforts because the buildings typically belong to funding bodies – such as local authorities or regional governments – rather than to the organisations themselves, as seen with organisations like *Staatstheater Darmstadt*. Similar to other areas of transformation, such as digitalisation, the publicly funded cultural sector in Germany resists change due to its interdependencies across various political and administrative levels. Moreover, it is often unable to act autonomously because of complex governance structures and fragmented decision-making powers (Vogel and Mohr, 2023, 9). If the buildings are additionally designated as historical landmarks, such as the *Staatliche Kunstsammlungen Dresden*, refurbishment options are severely restricted or complicated (German Federal Cultural Foundation (GFCF), 2021, p. 35). Investment measures require the approval of both the owners and heritage authorities. To finance these investments, arts organisations rely on public funding and, consequentially, on political decision-making. In such situations, some organisations take tactical decisions: Hans-Peter Schuster, managing director of the *Lenbach House*, an internationally distinguished museum in Munich, recommends defining a reasonable balance limit and clarify "from the start which assessable factors can be directly influenced by the organisation with a reasonable degree of effort and are likely to have an impact on the carbon footprint" (Schuster in German Federal Cultural Foundation (GFCF), 2021, 37).

Like air conditioning – but structurally on a different level –, arts organisations can only influence the mobility behaviour of their guests (and staff commutes) to a limited extent. The influence of this factor is obvious, even though only two of the organisations involved in the study quantified the share of guests' mobility: At *Staatstheater Darmstadt*, audience travel contributed to 79,5% of scope 3 emissions, which in turn accounted for 52% of all emissions (German Federal Cultural Foundation (GFCF), 2021, 49). At *Staatsschauspiel Dresden*, audience travel contributed to 56% of scope 3 emissions, which in turn accounted for 62% of all emissions (German Federal Cultural Foundation (GFCF), 2021, 47).

The mobility behaviour of the people living in a community or city is influenced by a number of factors: infrastructural factors such as the availability and quality of public transport, including bicycle and pedestrian friendliness of the area; socioeconomic factors such as financial means of visitors, place of residence, age and mobility limitations; external conditions such as the weather; and not least factors such as individual preferences and habits (environmental awareness and sustainability mindset, convenience and comfort preferences or perceived safety). Yet, none of these factors can be autonomously or directly influenced by the organisations.

The study participants exclusively proposed additional services: By offering combined tickets that include free public transport access, organisations can incentivise guests to choose more environmentally friendly modes of transportation, thus reducing reliance on private vehicles. The installation of electric vehicle charging stations enhances infrastructure support for sustainable car travel, encouraging visitors who own electric vehicles to attend events without concern for charging availability. Additionally, conducting visitor surveys allows organisations to gather data on guest travel habits and preferences, providing valuable insights that can guide further improvements in sustainability initiatives (German Federal Cultural Foundation (GFCF), 2021, 26).

Ultimately, while direct control over mobility of guests is limited, the proposed measure in the study suggest that arts organisations could still foster a culture of sustainable travel through targeted enhancements and community engagement, supporting broader environmental goals.

Leverage points lie on a systemic level

The second step of the meta-analysis compares the results with relevant statements of the "practitioners' discourse" (DeVereaux, 2009) of libraries, museums and theatre companies on the European level. Following the domains of the participating arts organisations in the study, these were, firstly, the *Guidelines for Green and Sustainable Libraries* published by the International Federation of Library Associations and Institutions (IFLA, 2025), secondly, the results of the survey *Museums in the climate crisis* by the Network of European Museum Organisations (NEMO, 2022) and, thirdly, the results of the initiative *Where to land - embedding European performing arts in the new Climate Regime* (Engelhardt, 2022) launched by a collective of European cultural organisations, primarily from the performing arts, and environmental experts. These documents were assessed as significant statements in the "practitioners' discourse" (DeVereaux, 2009) as they were either published by the relevant professional associations or were developed in a broad participation process by professionals in the field. They represent a more recent stage of development in the discussion as compared with the data collection period of the Foundation's study which was 2019.

What all three reports have in common is that they emphasise the urgent need for sustainable practices across their sectors. Each report presents strategic approaches to

mitigate CO_2 emissions and foster environmentally responsible practices aligned with broader global goals:

The *IFLA Guidelines for Green and Sustainable Libraries* (2025) outline strategies for libraries to adopt environmentally and socially responsible practices in alignment with the UN Sustainable Development Goals. Targeting librarians, policymakers, and facility managers, these guidelines stress the importance of minimising environmental impact, promoting community engagement, and enhancing resource efficiency. Strategies such as energy-efficient building designs, sustainable procurement, and community education programmes underscore libraries' potential as ecological exemplars.

Similarly, the *NEMO report Museums in the Climate Crisis* (2022) identifies infrastructure as the primary source of CO_2 emissions within museums. Based on a Europe-wide survey among 578 museums in 34 countries, it addresses museum administrators and policymakers and emphasises the need for renovations funded to improve energy efficiency while protecting collections. The report highlights museums' potential role in climate action through emissions reduction, sustainable visitor travel options, and the integration of climate strategies into institutional missions. By adopting standard tools for emission measurement and engaging staff in sustainable practices, the report recommends museums to amplify public engagement and policy influence.

Finally, the report *Where to land – embedding European performing arts in the new Climate Regime* (Engelhardt, 2022) identifies mobility and transport among others as significant contributors to CO_2 emissions. Targeting performing arts professionals and policymakers, the report suggests in depth improved carbon budgeting, eco-conscious travel, and regulatory support for sustainable renovations in theatre buildings. It advocates for a justice-oriented transition, promoting education, cooperation, and equity to shift focus towards degrowth and smaller-scale artistic projects that embrace slow, sustainable practices. This transformation aims to maintain cultural activities while addressing environmental responsibilities through coordinated EU-wide support.

The reports confirm – albeit in greater detail and with varying emphases – the key areas of action identified in the Foundation's study: buildings and infrastructure (IFLA, 2025, 9; Engelhardt, 2022, 52; NEMO, 2022, 4), operational logistics and production processes (IFLA, 2025, 23; Engelhardt, 2022, 58; NEMO, 2022, 10) and mobility (IFLA, 2025, 24; Engelhardt, 2022, 44, 48). As saving energy in buildings and infrastructure and reducing emissions around mobility are equally relevant for libraries, museums, and the performing arts, leverage points to reduce emissions on these two levels lie on a systematic level that encompasses the divisions. Strategic solutions require concerted action on the national and international level as well as concerted decision of the national or European local funding bodies of publicly funded arts organisations, whose approval for investment projects and financing is essential. For example, the Nemo report recommends to "(f)und global, cross-sector, climate-focused networks and umbrella organisations that address and enable mutual sharing of skills, knowledge, and expertise – supporting and empowering the sector to address climate change." (NEMO, 2022, 5) or to "(i)ncrease communication between governing and funding bodies and museums, encourage cooperation" (NEMO, 2022, 4).

In contrast to the energy efficiency of buildings and infrastructure, the leverage points in operational logistics and production processes are also systemic, yet in most cases tailored to each division:

As the Foundation's study shows for *Stadtbücherei Norderstedt*, measures tailored to the operational logistics of libraries included reconsidering the "extensive repackaging of media (e.g., with plastics)" or "using recycled paper" (German Federal Cultural Foundation (GFCF), 2021, 53), but without quantifying their percentage in ratio to the overall emissions. On the level of operational logistics, the IFLA report additionally suggests using Green Information and Communication Technology. Here, the report emphasises extending the lifespan of computer hardware through repair, reuse, and sustainable recycling. It focuses on adapting equipment deployment based on actual needs, promoting the use of shared devices, and prioritising energy-efficient equipment. Libraries should prioritise digital formats to minimise resource use and reduce paper waste by encouraging scanning and providing email receipts among others (IFLA, 2025, 26f.).

For internationally orientated museums, e.g., *Lenbachhaus Munich*, upstream transport logistics, which involves the transportation of materials, components, or products from suppliers to an organisation, contribute the largest share with 71% in scope 3 (German Federal Cultural Foundation (GFCF), 2021, 37). Museums can also exert only limited direct influence on this factor. As mentioned, museums participating in the international art loan circuit must adhere to strict requirements, not only regarding their climate-controlled exhibition spaces but also in relation to the climate crates used for the global transportation of artworks. A leverage point on a systemic level would be to assess the requirements in international loan traffic. Yet, such decisions can only be made at an international, institutional level. Even a small reduction in the requirements would have a major impact. Is it for that reason that *Lenbachhaus* is testing – under strict conservational supervision – the effects of switching off the air conditioning for an hour at night (Lenbachhaus München, 2021, 77).

The same logic applies for the performing arts where Rodrigues already asked for a "debate as to whether cultural policy should consider large-scale public intervention in order to effect systemic change" (Rodrigues Vânia 2024, 1). Participants of the initiative "*Where to land - embedding European performing arts in the new Climate Regime*" approached ecological

transformation from a "radical" (Le Sourd, 2022, 45), fundamental perspective:

> "If systemic change is to be achieved, it is necessary to involve all players in the sector: artists, producers, programmers, institutions, funders and policymakers. Otherwise, there is a risk that the bulk of the individual effort will fall on the weakest link in the ecosystem, namely independent artists and producers" (Engelhardt, 2022, 8).

The initiative developed measurements on a systemic level such as to "rethink the scales of venues and events according to the capacity to attract audiences by sober means in a reasonable time, and to consider that events and venues have to be mainly connected to their local communities" (Valensi, 2022, 49); or the modernisation of the international railway systems in order to "provide appropriate working and sleeping facilities and proper cargo space" (Le Sourd, 2022, 46) among other recommendations (Overy, 2022, 54–57). "To do this," they concluded, "we must abandon the logic of exclusivity and the profiling of venues, as well as the logic of influence and territorial attractiveness" (Engelhardt, 2022, 8). Beyond a discourse that primarily focuses on increased efficiency, especially on energy consumption, they call for a reflection on the "conditions necessary for this transition" (Engelhardt, 2022, 9) and an agreement from public authorities to connect ecological objectives with social inclusivity (Engelhardt, 2022, 8).

Effects of artists' mobility must be evaluated with nuance

Carbon footprint reports categorise the effects of artists' mobility under mobility in general, along with staff commutes, business trips, and visitor mobility. The evaluations in the Foundation's report can only be used in part for further analyses here, as the participating arts organisations independently selected the subcategories to be evaluated in scope 3.

For organisations like *Kampnagel* in Hamburg, *Mousonturm* in Frankfurt/M., and *Schaubühne am Lehniner Platz* in Berlin, travel is crucial to their mission. *Kampnagel* and *Mousonturm* are prominent international cultural production venues, where international artistic productions form the core of their business. According to Katrin Ruppel, administrative director of *Kampnagel*, "travelling is an essential component in that" (German Federal Cultural Foundation (GFCF), 2021, 31). This is equally true for *Schaubühne am Lehniner Platz*, a leading ensemble and repertory theatre in Germany's capital. In 2019, *Schaubühne* reached 50,000 people through 83 guest performances worldwide, accounting for 25% of its audience. International guest performances are integral to the company's artistic profile and significantly contribute to its revenue. Unsurprisingly, over 85% of scope 3 emissions resulted from business trips and guest performance tours. "This plainly reflects the artistic and economic orientation of our theatre," the report states. "Consequently, all necessary measures to reduce our carbon footprint going forward will focus on international cooperation, which is ultimately a matter of cultural political significance" (Schaubühne in German Federal Cultural Foundation (GFCF), 2021, 43).

From a European perspective, nuanced evaluation of travel is critical. As *Mousonturm*'s official statement notes: "As an institution that presents international artistic positions and provides a stage for perspectives of the Global South, we evaluate emissions resulting from artists' travel differently than other data."

> "For the sake of climate equality, we do not want to question the value of cooperation and thus further discriminate against people from countries which contribute less to climate change but are impacted more severely by its effects. Our concept of culture acknowledges the necessity of transnational encounter and exchange" (*Mousonturm* in German Federal Cultural Foundation (GFCF), 2021, 33).

While "more environmentally friendly travel" is clearly beneficial (German Federal Cultural Foundation (GFCF), 2021, 25), broadly reducing trips in international collaborations could inadvertently undermine the mission of internationally active arts organisations.

As interim result, it can be summarised: If the primary levers for reducing CO_2 emissions operate at the systemic level, and additional high-priority levers necessitate collaborative decisions among divisions – namely libraries, museums, and the performing arts –, the question arises regarding the extent to which reports contribute to sustainability and how they must be used in order to achieve this impact without compromising the artistic mission of arts organisations.

Findings from the interviews

In both organisations, the Foundation's project was initiated with the motivation to contribute to the arts organisation's social duty. With the greater impact of other industries on climate protection in mind, they aimed to serve as a role model for smaller theatres as well as their visitors.

In both organisations, follow-up reports have been produced since the conclusion of the Foundation's project, albeit at varying intervals. During this process, the organisations altered both the balance limits and equivalence values, including those for district heating and operational logistics. For this reason, the results of the study can no longer be directly compared with each other even within an organisation. The interviewees still considered some datasets as "unreliable," due to assumptions made either because data was

unavailable or because datasets from previous years had to be used.

Furthermore, the respondents identified several conflicts:

- Firstly, they identified a conflict in the need to allocate staff resources, which were originally dedicated to fulfilling the organisation's mission – producing performances – and already considered scarce, to the additional, time-consuming task of creating the climate balance, which involves numerous employees.
- Secondly, they recognised that the internal issue of whether the burden on employees from measures like longer train travel times is justified in relation to the effectiveness of these measures compared to the emissions output of other industries remains unresolved.
- Thirdly, particularly within scope 3, they identified a contradiction between a theatre organisation's aim to attract the maximum number of visitors and the increased emissions output resulting from higher capacity utilisation of the venue.

So far, an action plan with prioritisation has been developed in both cases, but only basic measures, such as a combined public transport ticket, have been implemented. An interviewee reported that following the implementation of the initial measures, a rebound effect occurred. Since the conclusion of the Foundation's project, a position for sustainability management, located within the production management, has been created in both organisations. However, it lacks commitment from the funding bodies and is therefore not permanently funded. Currently, the organisations must finance the creation of the reports from their ongoing budget. The long-term goal is EMAS certification. As the interviewees work in state-owned buildings, they can only submit proposals in the form of "requirement notifications" (*Bedarfsanmeldungen*). The decision, however, lies with the municipality.

The interviewees report that creating the reports is an "emotionally highly charged topic" where "strong resistance" occurs. The preparation of the balances is characterised as a "research process," requiring all participants to engage in learning, as no one possesses expertise from the outset.

Discussion

By launching the carbon footprint report project, the Foundation aimed to achieve two key goals: Firstly, they intended to test a carbon footprinting model tailored to the cultural sector, offering a scalable tool for other organisations to achieve climate neutrality. Secondly, they wanted to explore how the allocation of funding could be linked with aspects of ecological sustainability (Brünger, 2022, n.p.). Regarding the results, the Foundation recommended among others "to compare an organisation with itself – over the course of several assessments in order to check whether targets have been achieved and measures have taken effect" (Brünger, 2022, n.p.).

The establishment of the Foundation in 2002, as well as its current influential position, is by no means a matter of course. Despite Germany's strong cultural federalism, where cultural sovereignty rests not with the federal government but with the sixteen regional governments, the Foundation has become a key agenda-setter in the country's cultural landscape. Initially focusing on contemporary arts (German Federal Cultural Foundation (GFCF), 2011, §2, 1), it has expanded its support to interdisciplinary and socially engaged cultural initiatives. Over time, the Foundation has played a key role in fostering cultural diversity, sustainability, and digital transformation in Germany's cultural landscape. Many of these programmes have had a demonstrably lasting impact on the cultural landscape and established new standards in cultural organisations. The Foundation is one of the major players in a cultural policy diffusion process in Germany. It can be expected that ideas and components of its funding policy will gradually diffuse into the policy making of the regional governments.

In the funding area of sustainability and climate, the Foundation had already developed a sustainable production compass for the cultural sector (GFCF, 2024 [2019]) before initiating the carbon footprint project. Currently, it is running a project on climate adaptation (German Federal Cultural Foundation (GFCF), 2025). The Foundation's executive duo at the time also asserted a leading role in this area. Asking where the "fight to avoid climate collapse" begins, they answered themselves: "We must all work together to make a difference – as consumers, citizens and in working life" (German Federal Cultural Foundation (GFCF), 2021, 3), furthermore calling this to be a "credo" to which it feels committed.

> "Will Germany's art and cultural sector play a measurable role in achieving the 1.5-degree target of Paris? Probably only to a limited extent. The global wheels of emissions reduction are not driven by the cultural sector. But climate policy goals can only be achieved at home if all of society participates in the transformation process. We in the cultural sector are also called upon to visibly promote and advance this process!" (Völckers and Haß, 2021, 3).

In doing so, the Foundation established a new, highly moral imperative, calling on the entire cultural sector to take responsibility in combating climate change. The participating organisations adhere to this imperative, as evidenced by the statements in the accompanying texts of the study's publication, authored by the organisations' own staff: They, e.g., *Schaubühne*, demonstrate the willingness, even more: the obligation to follow when declaring carbon footprint reports are

to be delivered annually from now on. They voluntarily embrace the commitment "to play a more active role in the transformation process shaping all of society" (German Federal Cultural Foundation (GFCF), 2021, 43). And they professionalise the field when introducing new job profiles such as an "environmental protection officer" (German Federal Cultural Foundation (GFCF), 2021, 41). The climate footprint standard for cultural organisations, which was adopted by federal, state and local authorities in Germany in 2023, is a direct result of this process (Ministerium für Wissenschaft, 2023).

Emerging institutional isomorphisms

Using the lens of Sociological Neo-Institutionalism (DiMaggio and Powell, 1983; Meyer and Brian, 1977), the Foundation and its project can be interpreted as establishing "standards of appropriateness for organisational structures and practices" (Walgenbach and Meyer, 2008, 16), enhancing the legitimacy of cultural organisations while simultaneously fostering isomorphic tendencies. Based on the Foundation's sustainability funding programmes and especially its pilot project on carbon footprinting, more and more cultural organisations have adopted such reports as a standard in recent years. In the first step, the project had a mimetic effect – other organisations imitating this procedure –, and in the second, a normative effect – accepting carbon footprint reports as a new standard. It seems justified to speak here of both mimetic and normative isomorphism. The logic is: if you don't go along with it, you lose your legitimacy as trustworthy, responsible and innovative arts organisation.

In Sociological Neo-Institutionalism, widely shared beliefs or values that shape organisational behaviours and structures, often guiding organisations to conform to societal expectations and norms, are referred to as myths (Meyer and Brian, 1977). These myths shape organisational behaviour as they conform to societal norms and expectations rather than focusing on efficiency or technical necessity. It is appropriate to refer to carbon footprint reports as a newly emerging myth in this sense. On a European level, the diffusion process started in the United Kingdom with ACE's tremendously successful project *Julie's Bicycle* (ACE, 2015). When the participants of *Where to land* met in Strasbourg, France, in October 2022, the results of the Foundation's study had already been published. The largest group among the participants came from France, the second largest from Germany and the fourth largest group from UK (Engelhardt, 2022, 17). It is most highly likely that many of them were aware of their national initiatives. In the "practicioners' discourse" (DeVereaux, 2009) of the initiative, participants articulated that "the need for measuring and assessing the effects of cultural operations on ecosystems is just as relevant, but this latter has only recently emerged in the debates and is still largely ignored in cultural policies." (Calvano, 2022, 29).

However, this process of institutionalisation in the discourse of ecological sustainability risks creating a coercive isomorphism (DiMaggio and Powell, 1983, 150), with political and private authorities incorporating such reports as funding prerequisites. The Foundation deliberately forced such a development when it pursued cultural policy objectives by seeking to integrate carbon footprint reporting requirements into its funding framework. Representatives of the foundation discuss this publicly:

> "For the Federal Cultural Foundation, the pilot project was also about the question of how ecological sustainability can be implemented on a larger scale in its own funding system. (. . .) New key figures beyond occupancy rates and income quotas are being considered; alternative reporting standards, carbon footprints and instruments for monitoring ecological success. In short: linking the allocation of funding with aspects of ecological sustainability." (Bünger 2022)

Such a binding condition was also discussed within the initiative *Where to land*, too: "from fiscal incentives for virtuous entities minimizing their impacts on climate, to setting minimum environmental requirements to get access to funding" (Calvano, 2022, 32) which demonstrates that the diffusion process continues.

At first glance, such an approach seems entirely reasonable and rational given the global significance of the issue. However, the analysis showed that some of the key factors in the reduction of emissions either fall outside the decision-making authority of the organisations or need to be addressed at a systemic level, whether national or even international. Not least: "The urgency of doing this isn't always matched with adequate resources" (Le Sourd, 2022, 45), both staff and money. Linking ecological criteria to the allocation of subsidies might lead to a dead end and might contribute to a further bloated reporting system, which in case of doubt defeats its purpose.

Even more, the sector faces the risk of de-coupling: The term refers to the disconnect between formal organisational structures or policies and actual practices.

> "Decoupling enables organizations to seek the legitimacy that adaptation to rationalized myths provides while they engage in technical 'business as usual'" (Boxenbaum and Jonsson, 2017, 2).

In such a situation, an arts organisation could officially – vis-à-vis its funding bodies – adapt to this pressure and adhere to carbon footprint reports and its principle of comparing the development of its own situation longitudinally, but "decouple its formal structure from its production activities when institutional and task environments are in conflict" (Boxenbaum and Jonsson, 2017, 2). The first signs of this development are evident: Both interviewees mentioned that there was strong emotional resistance within the organisation against the new reporting structures. After the completion of the pilot project, subsequent

data gatherings were no longer conducted with the same intensity. Further studies observed the same tendency: In his research on climate-neutral theatre production, sociologist Manuel Rivera reports on the reactions of some staff members who increasingly distanced themselves from the goal of climate neutrality during the production process and even referred to it as "greenwashing" in some cases (Rivera, 2024).

Under pressure, the strategy of comparing an organisation across multiple assessments (which the Foundation recommended) allows balance limits and their definitions to be used tactically. Rather than limiting assessments to factors the organisation can directly control, the focus is on areas where improvement can be clearly demonstrated.

Prioritising political decisions over short-term efficiency gains

Given the issue's complexity, prioritising accessible "low-hanging fruits" and recommending corresponding "micro steps" (Garthe, 2022, 274) seems a logical starting point. However, an exclusive emphasis on efficiency gains, and especially easy to gain improvements, risks overlooking more effective systemic levers. The willingness of arts organisations to take organisation-specific responsibility for climate change must not obscure the accountability of key systemic actors – which the cultural sector will probably only achieve through lobbying and political support. Furthermore, a narrow focus on efficiency would reduce the concept of sustainability to its ecological dimension, neglecting social sustainability, particularly in "fragile contexts" (European Theatre Convention, 2023, 10), as for the performing arts sector European Theatre Convention's *Opole Recommendations* put it, namely in terms of income and working conditions of cultural workers and (independent) artists.

Thus, establishing carbon footprint reports as basis tool for establishing environmental sustainability without simultaneously working on higher systemic and especially political levels may inadvertently constrain organisations' capacity to achieve genuine ecological sustainability. By favouring standardised approaches, the sector risks overlooking more adaptive or innovative solutions to its environmental challenges.

Thus, while carbon footprint reports are vital tools for enhancing environmental sustainability, relying on them without simultaneously addressing broader systemic and political levels may inadvertently limit organisations' capabilities to achieve genuine ecological sustainability. Additionally, favouring standardised approaches could lead the sector to miss out on more flexible or innovative solutions to its environmental challenges, potentially stifling creative responses to pressing ecological issues. Already in 1983, DiMaggio and Powell demanded from policymakers to "consider the impact of their programs on the structure of organizational fields as a whole" (DiMaggio and Powell, 1983, 158). Such a strategic approach within the cultural sector, as well as its divisions, necessitates essential cultural policy decisions and the intellectual and financial support of funding bodies. Only on this foundation can existing goal conflicts be addressed and experiences accumulated, which can serve as a guide in the face of future ambivalences and uncertainties in the pursuit of ecological sustainability.

Conclusion

This paper aimed to contribute to the theoretical understanding of ecological transformation in the arts sector by highlighting both the potential and limitations of carbon footprint reports as a sustainability tool. The findings showed that for the arts organisations direct influence on emission reduction is only possible to a limited extent and that key leverage points lie on a systemic level. In addition, some measures could have unintended effects on the mission of these organisations. Furthermore, the findings indicate institutional isomorphisms initiated by the Foundation's project – itself influenced by similar initiatives in other European countries – where a mimetic effect drove widespread adoption, gradually evolving into a normative standard. However, this institutionalisation also risks coercive isomorphism, as political bodies may require such reports as a prerequisite for funding. While reinforcing legitimacy, such mechanisms may constrain organisations' ability to address sustainability challenges effectively, particularly given systemic barriers and the nuanced role of artist mobility vis-à-vis the mission of an arts organisation.

To summarise: The results of this paper indicate that carbon footprint reports can only play a limited role as initial steps towards a sustainability strategy and should not be made a mandatory requirement for funding. Comparably, the EU Commission simplified EU regulations, which includes exempting small and medium-sized companies with fewer than 1,000 employees from the sustainability reporting obligation. These companies can voluntarily report according to a simplified, modular standard. This follows a dual approach by both reducing mandatory burdens for smaller businesses while encouraging them to engage in sustainability practices through flexible reporting frameworks that are less resource-intensive (European Commission, 2025). The cultural sector, and particularly cultural policy actors, would be wise not to make decisions that the EU Commission is already reversing for other economic sectors.

The moral imperative – "We in the cultural sector are also called upon to visibly promote and advance this process!" (Völckers and Haß, 2021, 3) – was the starting point of the Foundation's project. All participants pledged their commitment to this social mandate, with some referring to the role model function of arts

organisations. On the policy level, this function has already been recognised. The *German Sustainability Strategy 2025* already established this approach. The strategy sees the potential in the cultural sector to contribute to "a reflective, self-determined, and committed life design" (Deutscher Bundestag/20. Wahlperiode, 2025, 47). Cultural actors have "a special significance because they reflect societal developments, develop narratives, open up new perspectives, and have the ability to unfold cohesive forces" (Deutscher Bundestag/20. Wahlperiode, 2025, 34). To what extent society can expect such an impact from arts organisations needs to be explored in other studies.

Reflections on limitations of the analysis

- The identification and assessment of the key leverage points for emission reduction were based on the published results of the Foundation's study. As the majority of the participating organisations, during this project, compiled a carbon footprint report for the first time and some of them rated the data quality as suboptimal, improved data might partly alter the significance of the identified leverage points. This should especially be explored in depth if it concerns the operational logistics, which differ across divisions. However, the significance of the category mobility is not expected to change.
- The results of the qualitative interviews are based on two interviews with performing arts organisations. On one hand, a higher number of interviews, including those with organisations from other divisions, could enhance the quality of the results. On the other hand, group discussions with involved staff members from multiple departments in the organisation might provide a more comprehensive answer to the question of how carbon footprint reports are compiled in arts organisations and the outcomes they lead to.
- The current results indicate a tendency towards the development of institutional isomorphisms. If carbon footprint reports were to be established as a prerequisite for funding, particular attention should be given to examining the tactical handling of balance limits and the formation of coercive isomorphisms.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

Original data derive from GFCF. JG is responsible for their interpretation.

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The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Generative AI statement

The author(s) declare that Generative AI was used in the creation of this manuscript. During the preparation of this work, the author used ChatGPT by OpenAI (Version: GPT-4-turbo, Model: GPT-4-turbo) in order to refine language.

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