

CIRCULAR ECONOMY IN THE PERFORMING ARTS: contributions of the Scottish model to sustainable innovation and resilience in Brazil

1 INTRODUCTION

The increasing frequency and intensity of extreme weather events in Brazil — such as the 2024 floods in Rio Grande do Sul — expose the systemic vulnerability of our production chains, including the cultural sector. As warned by IPCC (2023), the climate crisis is a chronic and escalating phenomenon, which reveals an urgent need for more resilient economic models. The current linear production model, prevalent in Brazil's cultural sector, is ill-equipped to handle these shocks, leading to operational and financial disruptions. This lack of systemic strategies for adaptation and resilience not only threatens the sector's economic viability but also its cultural and social role.

This research investigates the transition to a circular economy in Scotland's performing arts ecosystem, a context where sustainable practices have been formalized through robust public policies. By analyzing this practical model, the study seeks to understand its potential as a replicable innovation framework to strengthen the sustainability and climate resilience of the Brazilian cultural sector. The central research question is: how can the circular economy model, driven by public policies and civil society engagement in the Scottish performing arts, be adapted as a strategy to build climate resilience and sustainable innovation in the Brazilian cultural sector?

2 THEORETICAL FRAMEWORK

The concept of organizational climate resilience extends beyond the traditional engineering view of bouncing back to a prior state of equilibrium. As argued by Tompkins & Adger (2004), a purely reactive approach is insufficient for the chronic and systemic nature of climate change. A more robust perspective, rooted in ecological resilience (Folke, 2006; Holling, 1973), defines resilience as the ability of a system to persist, adapt and transform in the face of disturbances. This requires a shift in focus from resistance (the capacity to withstand a shock) and recovery (the speed of returning to a previous state) to transformation (the capacity to create a new, more sustainable system when the existing one is no longer viable). This transformative capacity is what enables a sector to not only survive but to thrive and evolve in a continuously unstable environment (Walker et al., 2004).

The circular economy offers a concrete pathway for implementing this transformation. Unlike the traditional linear model (take-make-waste), a circular economy is a systemic approach that decouples economic growth from the consumption of finite resources (EMF, 2015). Its core principles — eliminating waste and pollution, circulating products and materials, and regenerating nature — are directly aligned with the goals of climate resilience. This model fundamentally addresses resource scarcity and promotes greater efficiency by keeping materials in use for as long as possible. In the context of the performing arts, this can translate into innovative practices in areas like set design, costumes, production and props, reducing the sector's environmental footprint.

This study considers the structural economic challenge of the performing arts, the Baumol Effect (Baumol & Bowen, 1965), which intensifies the need for efficiency and sustainable innovation strategies to ensure the sector's long-term viability. The Scottish case study is analyzed through the lens of business ecosystems (Moore, 1993), understanding the interdependence between the multiple agents in the production chain, each having their own roles and motivations, here classified according to Stakeholder Theory (Freeman, 2010).

By integrating these concepts, this study proposes an analytical model that considers the cultural ecosystem as an adaptive and interdependent system, where resilience is a collective capacity built through strategic collaboration among stakeholders, and circularity, a core practice for long-term sustainability.

3 METHODOLOGY

Qualitative field research, using a case study approach, was conducted in Glasgow, Scotland between April and July 2025. Data collection involved mapping key actors for the sustainability of the Scottish cultural ecosystem, formulating and conducting semi-structured interviews with stakeholders in the local production network. These interviews were structured after documental analysis, in observance of recent news, key legislation — such as the Circular Economy (Scotland) Act 2024 and the Climate Change (Scotland) Act 2009 — and guidelines that foster and implement circularity and climate adaptation in the sector — such as those established by Creative Scotland and the Theatre Green Book (Renew Culture & Buro Happold, 2024)..

The agents selected to be interviewed included representatives from public agencies (Creative Scotland), artist networks (Federation of Scottish Theatre; Creative Glasgow), toolkits of sustainability in culture (Theatre Green Book) and practitioners who have leading experience in this theme (Reset Scenery).

4 DISCUSSION

Scotland's transition to circularity is primarily driven by regulatory pressures, aligned with the goals of the Paris Agreement. This top-down impulse has spurred the development of a resilient cultural ecosystem where organizations, policymakers and civil society work in synergy. In response, organizations like Culture for Climate Scotland have paved the way for collective action. Practical guides are emerging as tools for the production network to adapt to this new reality.

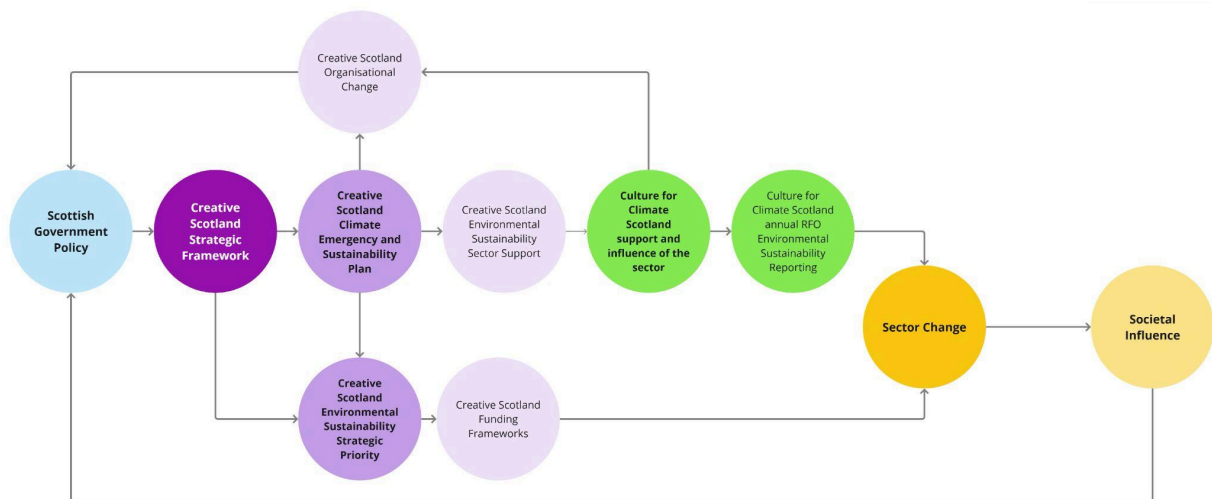
Creative Scotland is a non-department public body, an arms length organisation that delivers the objectives of the Scottish Government. It's existed for over 15 years, previously as the Scottish Arts Council, with the purpose to distribute funding for the arts and culture development in Scotland. This funding comes from the Scottish Government and the National Lottery. Karen Ridgewell, who serves as Climate Emergency and Sustainability Lead for Creative Scotland, explains about their environmental policies:

We have a number of statutory obligations to meet in relation to climate and, in relation to cultural policy, as a public body we have to meet climate obligations. We have cultural policy and climate policy that don't always talk to each other. And so we have to, as a public body, work out how we do that and support the organisations that we fund to be able to do that in both spheres. [...] There's three statutory obligations and it very clearly stipulates what that is: our mitigation, adaptation and ensuring that we use our money to not do damage to future generations — to paraphrase it.

It works in a cycle: the Scottish Government creates the policies that inform Creative Scotland's activities. For instance, the Scottish environmental legislation pushed the cultural agency to develop its own Climate Emergency and Sustainability Plan and its Environmental Sustainability Strategic Priority. These have, in turn, resulted in the development of aligned funding criteria, frameworks and sector support structures. Such developments are not restricted to Creative Scotland itself, but also conducted by a series of partners and funded organizations, like the sector-wide carbon accounting done by Culture for Climate Scotland

and the sustainability guidance provided to local artists by Creative Glasgow and the Federation of Scottish Theatre. This process promotes sustainable change in the cultural sector, which will eventually translate to societal change that could push forward public debate to inspire new policies by the Scottish Government. The following diagram (**Figure 1**), created by Ridgewell, illustrates this process:

Figure 1 – Sustainable cultural policy workflow



Source: Karen Ridgewell (2025).

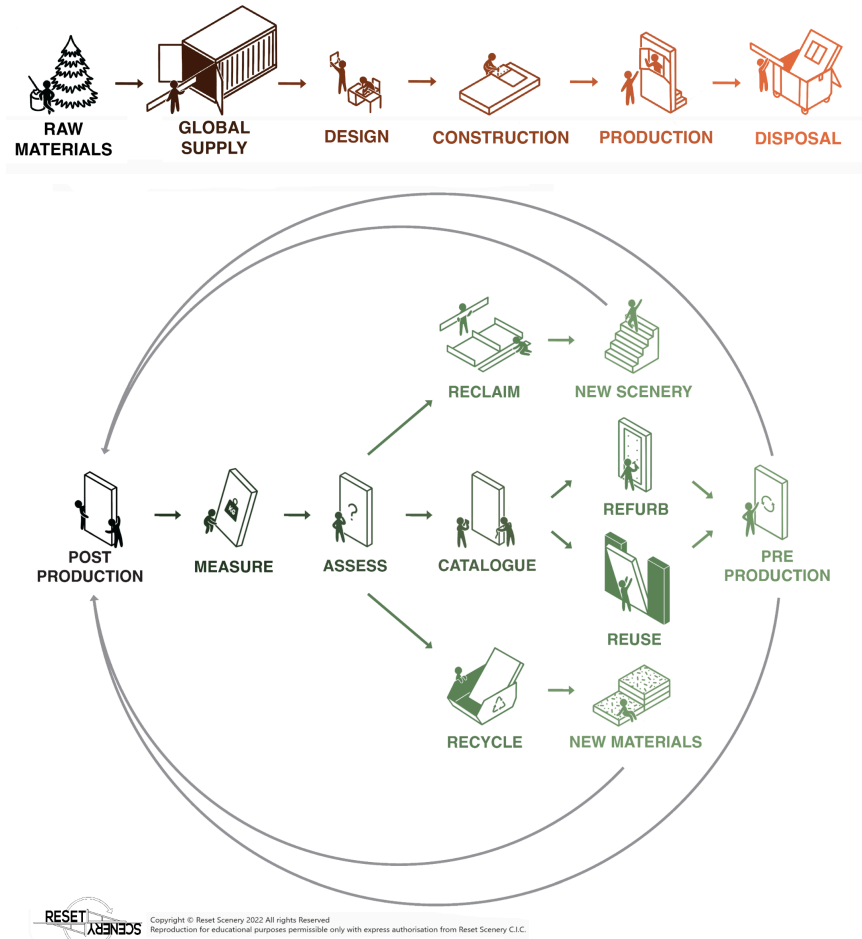
Private-led initiatives to go greener have also found success and made a lasting impact in the Scottish cultural sector. It's the case of the Theatre Green Book, a structured framework for driving sustainable change in organisations and individuals working in the theater sector, offering a shared language around this topic. It was co-founded in 2020 by Renew Culture and Buro Happold, joining cultural and engineering expertise. It's split into three areas: productions, operations and buildings. They have a committee for each of those areas composed of professionals across the British theater sector who work on making sure it's kept up to date. The resources are available for free and have been widely used in the entire UK, as well as internationally. Laura Sedgwick, who serves as a producer for the Theatre Green Book, considers:

Theatre Green Book also focuses very much on resource use, so a lot about circular economy. Theatre itself uses a lot of stuff in the shows, but also front of house when you're buying your drinks, or going to the loo and using loo roll, all that kind of operational side of things. So having as close to a circular economy as possible. [...] We've got our trackers which yes, work as carbon footprint calculators, but much more so really work as production calculators. It's very much about resource use, circular economy, encouraging people to make change in where they get their stuff from and where it goes to.

The adoption of circular design principles, such as the reusable set design model advocated by Reset Scenery, showcases the direct application of circularity to increase efficiency and reduce waste in the performing arts. In a diagram produced by the company (**Figure 2**), they illustrate their change of operations once leaving the linear model. Simon Cook, one of the co-founders, remembers that initially they would build very similar things for stage, film or events, all of which would be destroyed sometimes after only a few minutes of use — despite building with materials that often had a lifespan of at least 25 years. So they decided that instead of starting with raw materials, they would start working from post

production to better allocate used props and scenery: to either recycle, refurb, reuse or reclaim to build something new.

Figure 2 – linear and circular set design



Source: produced by Reset Scenery (2022)

The change in the Reset Scenery business model demanded new forms of production. Instead of building the same way as before, the set designers behind this initiative started investigating new materials and techniques to facilitate appropriate recyclability or reclaiming — such as using wooden screws instead of metal ones. While it's still challenging, Reset Scenery has survived through economic moments like the COVID pandemic and has continued to grow since its foundation in 2018.

Financial problems are one of the main obstacles that artists face in their journey to make their operations greener, according to all of our interviews. The proliferation of organizations and initiatives that foster sharing of resources in the Scottish creative ecosystem — like Reset Scenery, OuterSpaces and ARMS — reinforces the importance of this systemic approach. These initiatives act as key actors that facilitate resource management and knowledge diffusion, fostering a culture of collective resilience and sustainable innovation.

OuterSpaces tackles the lack of space for artists to work, by negotiating with tenants arrangements for artists to occupy empty buildings for free on the condition that they will return it in the same condition as before. In exchange, the artistic work performed there can contribute to bringing more value to that neighborhood, that building and that unit — with the potential of even increasing the price for if it's on the market. ARMS – Arts Resources

Management Scotland functions as a collective inventory, where artists catalogue their props, costumes, scenery and other equipment that they have available to share or rent.

The model developed by companies like Reset Scenery and ARMS directly addresses the core challenge of the Baumol Effect (Baumol & Bowen, 1965). Instead of constantly recreating sets and props from new materials, which drives up labor and resource costs in a sector with limited productivity growth, these initiatives create a supply chain of reused and reclaimed materials. This breaks the linear “build and dispose” cycle, making it economically viable for smaller companies to access high-quality resources at a lower cost. In essence, by fostering resource sharing and circularity, the Scottish ecosystem is not only reducing its environmental footprint but is also developing a structural economic response to a fundamental problem of the performing arts industry.

A closer look at how different parts of the sector work together shows that this collaboration is what makes Scotland's circular transition so successful. The government, mainly through Creative Scotland, is a key player, acting as both a funder and a rule-setter to ensure environmental standards are met. Conditioning funding to sustainability reports is the most effective way to initiate change. Organizations like Culture for Climate Scotland and the Theatre Green Book are vital in the middle, turning official policies into practical tools and advice for the cultural sector. Finally, innovators like ReSet Scenery are businesses creating real solutions for recycling and reducing waste. This isn't a top-down system — it's a network where every part depends on the others to make it work. It's this shared effort that builds the kind of resilience needed to face the climate crisis together.

5 CONCLUSION AND FUTURE RESEARCH

The Scottish model demonstrates that sustainable innovation in the cultural sector is most effective when driven by a robust combination of public policies and engaged civil society organizations, operating in a cohesive ecosystem. Its implementation provides valuable lessons for Brazil, reinforcing the importance of collaboration across the entire production chain. In contexts of reconstruction, such as in Rio Grande do Sul, this model presents a viable project for building a sector that aligns its economic viability with socio-environmental responsibility, positioning itself as a leading player in the country's transition to a more resilient future. The key takeaway for Brazil is the need to move beyond isolated initiatives and adopt a systemic, policy-driven approach that fosters a culture of circularity and climate adaptation throughout the cultural sector. That is a challenge in a context where there are very few mappings of the Brazilian cultural sector, and even the most well-structured cultural secretariats struggle to know for sure the number of cultural organizations they serve. This has been slowly changing, especially since the pandemic and the implementation of the Aldir Blanc National Policy

Based on the Scottish model, several key actions can be proposed for the Brazilian cultural sector, especially in a context of reconstruction like the one in Rio Grande do Sul. This presents a unique opportunity not to simply rebuild, but to transform. An agenda for future research could include:

- **Policy and Governance:** How can public cultural policies in Brazil, particularly at the state and municipal levels, be redesigned to incorporate mandatory environmental criteria for funding, mirroring Creative Scotland's approach?
- **Economic Viability and the Baumol Effect:** In a context of resource scarcity, how can intermediary organizations — such as a hub for sharing resources — be implemented to mitigate the financial pressures of the Baumol Effect and foster a circular economy in the performing arts?

- Ecosystemic Collaboration: How can dialogue and cooperation be fostered among different stakeholders (government, artists, academics and businesses) to build an ecosystem that is not only more resilient to climate shocks but also more equitable and socially responsible?
- Transformative Practices: What new sustainable design and production methods, inspired by initiatives like the aforementioned, would be most effective for the Brazilian context in promoting circularity and long-term sustainability?

This systemic approach is essential for ensuring that the reconstruction of the cultural sector in Brazil is not just a return to the past but a strategic leap toward a sustainable and resilient future.

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