

Ecological Dimensions in Music Management. Adaptability and Innovation in Philharmonics and Operas

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Abstract

This paper discusses integrating sustainable management practices in musical organizations, specifically focusing on philharmonics and operas. By emphasizing the importance of interdisciplinary approaches to decision-making and leadership, the study proposes policy recommendations to foster sustainability, environmental responsibility, and cultural acts in these music industry sectors. This paper underscores the critical need for music organization management to embrace sustainability as a cornerstone of its operations. By integrating sustainable management practices and promoting interdisciplinary collaboration, philharmonics and operas can minimize their ecological footprint and strengthen their cultural impact and resilience. This paper serves as a call to action, urging music organizations to prioritize sustainability, environmental stewardship, and cultural preservation to secure a vibrant and sustainable future for the music industry as a whole, also having a key role in education.

Keywords

Cultural Management; Music Management; Innovative Management in Philharmonics and Operas; Policy Recommendations; Environmental Footprint of Music.

Introduction

The music industry holds a pivotal role in shaping cultural identity, fostering creativity, and providing entertainment and education to communities globally. It serves as a medium for artistic expression and cultural preservation, contributing significantly to the enrichment of society. Traditionally, discussions about music, particularly classical music, have centered on its artistic and cultural dimensions, often emphasizing its value as a form of leisure, education, and heritage. An equally important aspect that has garnered less attention is the environmental impact associated with this sector.

The operations of musical organizations, including concert productions, venue management, and logistics, contribute to resource consumption, waste generation, and carbon emissions. These environmental challenges are particularly pressing in the contemporary context, where sustainability has become a critical societal priority. Despite music's cultural and artistic significance, its ecological footprint underscores the need to address sustainability concerns systematically and informally.

Central to the discussion of the sustainability of this sector is the examination of its social dimension, more specifically, how music establishes inter- and intra-personal connectivity. Drawing on ethnomusicological research, such as Turino's (2009) insights into music's role in social identity formation, the study explores how shared musical experiences contribute to a sense of belonging and cohesion. Rentfrow's (2012) findings on the connection between music preferences and emotional and relational dynamics provide a psychological foundation for understanding music's

integrative potential. The analysis extends to the political dimensions of music, where its capacity to unite or polarize is evident. Historical examples, such as Hitler's strategic use of music to solidify the "Aryan race" narrative (Turino, 2008), and more contemporary instances, like the dissemination of extremist ideologies through White Power music in Scandinavia (Corte, 2006, cited in Bergh, 2008), illustrate the dual-edged nature of music as a tool of influence. Simultaneously, music's role in peace-building, as evidenced in Richards (2007) and Bergh (2008), demonstrates its potential to rebuild trust and foster reconciliation in post-conflict settings.

In the realm of cultural management within the music industry, the intersection of diverse fields such as art, culture, education, and environmental sustainability has become increasingly crucial for the advancement of sustainable practices. Emphasizing the importance of environmental responsibility, the exploration of interdisciplinary approaches forms the foundation for innovative management practices in these vital institutions/organizations. By analyzing the intersection of policy recommendations and sustainable management and leadership practices, this study aims to show the pathways toward a harmonious coexistence between artistic excellence and environmental consciousness in the ever-evolving landscape of music organizations in education and artistic development.

The management of cultural institutions such as Philharmonics or Operas consists of directing the organization towards a specific purpose - the production of aesthetic, artistic, moral, and spiritual values, the diffusion and promotion of these values, and the protection and circulation of the cultural heritage.

Considering this framework, the present study discusses integrating sustainability dimensions in cultural organizations' management and leadership practices, such as Operas and Philharmonics. It aims to evaluate how these organizations balance their cultural and educational aims with social and environmental considerations. Considering an interdisciplinary approach, the study examines how modern society's demands, including those related to the environment, align with the cultural dimensions.

The analysis of the changes in society, whether general and predictable or unpredictable, such as pandemics and wars, and the frequent changes in the political area, especially from the year 2024, is considered. In this way, the cultural priorities will be established because, most of the time, a political change can bring a reevaluation of the priorities in the cultural field. Policymakers may choose to support certain art forms or promote certain cultural aspects according to their political vision and values. Funding and budgeting are interconnected elements because the allocated budget is often affected by political changes; this aspect diminishes the capacity of cultural institutions to carry out their activities and implement management strategies, regulations, and policies where it is necessary to bring a perspective on the importance of lobbying both for requesting grants, subsidies or other forms of funding for cultural projects and to target changes in legislation or regulations that directly or indirectly affect the cultural sector and a last aspect international and diplomatic relations.

This study adopts an interdisciplinary approach to examine the role of music in fostering sustainable social management and its implications for policy integration. By synthesizing concepts from ethnomusicology, psychology, sociology, and political

science, the methodology focuses on understanding music's ability to connect individuals and communities, as highlighted by Turino (2009), Rentfrow (2012), and others. The research relies on a qualitative narrative review and an impact mapping to explore the dynamic relationships between large musical organizations, such as Operas and Philharmonics, and the environment.

Literature review

A distinct body of literature focuses on exploring key concepts within the cultural sector's specialized fields of cultural management, innovative management, and human resource management. These areas of study are often treated as niche due to their targeted application and relevance to specific organizational contexts, particularly within creative and cultural industries. This specialized focus allows scholars and practitioners to address the unique challenges and opportunities that arise in managing cultural organizations, fostering innovation, and optimizing human resources in ways that align with broader organizational and societal goals.

However, in the post-pandemic context, the dynamics of the development of cultural institutions underwent a profound change, influenced by new social and psychological factors, such as the growing disinterest of the public and the preference for the comfort of one's own home (Peuter, Oakley, & Trusolino, 2022). During the COVID-19 pandemic, cultural consumption migrated to the virtual environment, and the traditional experiences offered by physical cultural institutions were largely marginalized. It is also worth noting that, even three to four years after the pandemic, offline cultural consumption has not returned to pre-pandemic levels in many cases. This decline highlights cultural institutions' ongoing challenges in re-engaging audiences and adapting to new consumption patterns. In the case of Romania, this trend is documented in the *Barometrul de Consum Cultural* (Cultural Consumption Barometer), which provides valuable insights into audience behavior and preferences in the post-pandemic context (Croitoru & Becut-Marinescu, 2024). This transition revealed new challenges for the management of cultural institutions, which faced difficulties in regaining public interest and restoring a balance between online and offline cultural experiences.

However, the perspective overlooks the integral role that education, culture, and sports play in shaping a society's long-term social and economic fabric. These domains are not merely supplemental but are foundational to societal resilience, innovation, and cohesion. These elements contribute to the cultivation of creativity, critical thinking, and a sense of shared identity, which are essential for navigating and adapting to new realities. Thus, rather than relegating them to secondary importance, it is imperative to recognize education, culture, and sports as fundamental pillars of societal progress, seamlessly integrated with broader social and economic objectives.

In the contemporary landscape of artistic and musical organizations, integrating sustainable practices has become a critical imperative. While the cultural dimension remains foundational to the identity and purpose of these organizations, modern leadership is increasingly confronted with pressures to adopt practices that ensure the long-term sustainability of their operations.

By embedding environmental and social imperatives into their core values, artistic and musical organizations can become powerful agents of change, demonstrating that cultural production and preservation can coexist with a broader commitment to the well-being of society and the planet. This dual focus enhances their relevance in the contemporary world, positioning them as leaders in the global movement toward sustainability and equity.

The environmental footprint of music

In the context of the global climate crisis, where concerns about clean water, air, and other fundamental resources dominate public discourse, the arts—particularly music—might appear secondary to these urgent needs. However, music holds significant potential as a transformative force in addressing climate change, making it a powerful and complementary asset in the broader effort to tackle environmental challenges.

One compelling argument for the role of music lies in its unparalleled ability to communicate complex emotions and ideas in an accessible and universally resonant manner. Music transcends linguistic and cultural barriers, enabling it to act as a global medium for raising awareness about climate issues. Through evocative compositions and lyrics, musicians can inspire empathy, urgency, and a shared sense of responsibility, creating a deeper connection to the environmental cause. For instance, musical works that integrate sounds from nature or address themes of environmental degradation can evoke a visceral understanding of what is at stake, motivating action in ways that data or policy briefs alone may not achieve (Brennan, 2020).

Moreover, music is a unifying force, fostering collective action and community building. Large-scale concerts and musical events have historically been used to promote social change, from raising funds for disaster relief to supporting human rights initiatives. Similarly, music can galvanize public support for environmental initiatives by creating platforms for dialogue and collaboration. Events focused on sustainability, such as eco-friendly music festivals, not only draw attention to climate issues but also model sustainable practices, such as waste reduction, renewable energy use, and carbon-neutral production. A notable example is Live Earth (2007), a global concert series organized by Al Gore and the Alliance for Climate Protection, which featured performances on all seven continents to engage audiences in climate action (Live Earth, 2007). This dual impact of raising awareness while demonstrating actionable solutions amplifies music's role as a driver of change.

The environmental impact of the music industry is multifaceted, and its role in sustainability must be viewed not only in terms of its content and outreach but also through the lens of the operational practices and supply chains that support musical performances. From the planning stages of a concert to its execution, every step in the process has the potential to contribute to environmental degradation, especially when considering the extensive resources required to bring music to life (Wuppertal Institute for Climate, Environment, and Energy, n.d.).

The first major environmental concern stems from the supply chain of musical productions, which can be highly resource-intensive. For instance, creating and transporting materials used for staging—such as costumes, sets, instruments, and

lighting—generates significant emissions. The manufacturing process of these materials, particularly for large-scale productions like operas or symphonic concerts, often involves using energy-intensive practices that release carbon into the atmosphere. Furthermore, the transportation of these materials to the venue, whether by truck, plane, or ship, adds an additional layer of carbon emissions, especially when considering international tours or large-scale festivals that require the movement of equipment across great distances.

Once the performance is underway, the environmental impact continues through the energy consumption required to power the event. Concerts, operas, and festivals typically rely on electricity to run lighting systems, sound equipment, and staging. The energy used is often generated from non-renewable sources, contributing to greenhouse gas emissions. For example, the complex lighting setups in symphonic concerts or the stage equipment used during large-scale events such as music festivals require significant amounts of electricity, often produced by fossil fuels. The power consumption scale increases exponentially when considering the large crowds attending these events, where the combined energy demand can exceed that of smaller urban areas (O'Brien, 2018).

Additionally, the waste generated by musical events is another significant environmental concern. Disposable materials such as plastic bottles, food containers, and promotional materials accumulate during performances, festivals, and concerts. This waste, much of which is non-recyclable or poorly disposed of, leads to a considerable environmental footprint. The production and disposal of these materials contribute to landfills and pollution, further exacerbating the sector's ecological impact. The waste generated by single-use items, in particular, is often overlooked in the face of the event's cultural significance. Yet, it constitutes a critical element of the environmental cost associated with these productions.

Beyond these operational concerns, the impact of touring musicians and orchestras further amplifies the climate consequences of musical performances. The transportation of musicians, conductors, and their teams, along with the movement of instruments and equipment, significantly contributes to emissions. International tours, in particular, require extensive air travel, which is one of the highest contributors to carbon emissions within the entertainment industry. The frequency of these tours and the distances traveled create an ongoing strain on the environment as the carbon footprint of each journey accumulates over time.

Even outdoor events, which may appear to have a lower energy consumption than indoor concerts, still face significant environmental challenges. For instance, outdoor concerts often require temporary infrastructure, such as stage setups, tents, sound systems, and portable sanitation facilities, all of which have to be constructed, transported, and disposed of in ways that can create environmental harm (Brennan, Scott, Connelly, & Lawrence, 2019).

Thus, the environmental footprint of the music industry extends well beyond the performance itself, encompassing the entire lifecycle of an event—from the supply chain to transportation, energy use, and waste management. Each stage in the creation and execution of a musical event has potential environmental consequences that, when aggregated, contribute to significant climate impacts. Recognizing this, the industry

needs to adopt sustainable practices across all aspects of musical production, from reducing energy consumption and waste generation to rethinking supply chain processes and adopting greener technologies. By addressing these factors, the music industry can reduce its ecological footprint and play a more active role in global sustainability efforts (Wise, 2020).

Sustainable management in Philharmonics and Operas through environmental lenses

Sustainability in the arts is essential to reducing the environmental impact of cultural institutions while ensuring their long-term viability. Philharmonics and operas rely on extensive resources, from travel and energy to materials and equipment, making it crucial to adopt eco-friendly practices. By integrating sustainability into their operations, these organizations can lead by example, inspiring audiences, artists, and stakeholders to prioritize environmental responsibility. Additionally, reducing waste, conserving energy, and promoting sustainable alternatives not only benefit the planet but also enhance operational efficiency and cost-effectiveness.

Table 1 outlines key principles and action areas for sustainable management in philharmonics and operas. It highlights the commitment to environmental responsibility, sustainability, and performance monitoring. The table is divided into four main categories—Travel & Transport, Paper & Plastic, Energy & Water, and Office Supplies & Musical Equipment—each with specific strategies to minimize environmental impact. These initiatives include reducing paper use, optimizing energy consumption, promoting eco-friendly travel options, and encouraging responsible purchasing and waste reduction. Organizations can contribute to a more sustainable future by implementing these measures while maintaining artistic and operational excellence.

Table 1. Mapping sustainable management in Philharmonics and Operas: principles and key action areas

Principles for sustainable management in Philharmonics and Operas			
<ul style="list-style-type: none">• Foster an organizational culture of environmental responsibility• Incorporate environmental themes and concepts into season programs• Collaborate with partners who share the same commitment to environmental sustainability• Continually reduce environmental impacts.• Continually monitor environmental performance.			
Main areas of action			
Travel & transport	Paper & plastic	Energy & Water	Office supplies & musical equipment
- Aim to reduce the need for staff travel, promote the use of travel alternatives such as e-mail or video/phone conferencing; - Encourage staff and service users to travel by public transport or bicycle	- Reduce paper usage through digital communication, marketing, and document management systems; Also, the music sheet can be used by tablets. - Reuse and/or recycle materials where possible (e.g., printed	- Reduce the amount of energy we use as much as we can; - Switch off lights and electrical equipment when not in use; - Adjust heating with energy consumption in mind; - Consider the energy consumption and	- Evaluating whether a need can be met without purchasing new equipment (for example, repairing musical instruments); - Repair, rather than replace musical instruments where

wherever practical; - Make additional efforts to accommodate the needs of those using public transport or bicycles.	sheet music); - Avoid single-use plastics and packaging; - Raise awareness among staff, participants, and stakeholders about the importance of waste reduction and recycling;	efficiency of new products in purchasing decisions.	possible. If repair is not viable, we can reuse and recycle parts (e.g., cases, mouthpieces, valves, strings, etc.); - A commitment to reducing waste by ordering only what we need;
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Policies for sustainable management in music

How can we all make the music industry more sustainable? Sustainability has become an integral part of our lives and affects every decision we make. Is sustainability necessary, or it’s just a global idea, a new idea?

With this in mind, it’s no wonder that so many industries are trying their best to embrace it, and although the music industry is making great strides in the right direction, it’s still a long way behind (Farrell, 2024). Like many other sectors, it has a significant environmental footprint, and promoting sustainability in the music industry means tackling various aspects of the business, from production to consumption to distribution., but especially when touring (American Orchestras Association, 2021). Indeed, from the energy consumption of major concerts and festivals to the production of physical media such as vinyl records and CDs, there are many areas where the industry can make changes to become more sustainable.

Some of the aspects of the industry and the strategies that can be adopted to make the music industry more sustainable:

1. Energy efficiency and renewable energies in the music industry

One of the principal ways in which the music industry can reduce its impact is by focusing on energy efficiency and renewable energy sources. Like any other sector, the music industry can significantly contribute to the fight against climate change by reducing its reliance on fossil fuels to cut greenhouse gas emissions.

The use of solar panels to power concert halls and studios is a good example. Energy efficiency in studios, but also during the manufacturing and distribution processes, is particularly important and it is worth investing in energy-efficient equipment and using renewable energy sources, such as solar or wind power, wherever possible. For example, in Romania, most of the Philharmonics or Opera halls changed their stage lights from normal to LED, a considerable investment in the last ten years—however, only two of these institutions invested in solar panels: Pitesti and Ploiesti Philharmonic.

Another excellent example is using environmentally friendly means of transport for touring, such as electric or hybrid vehicles, when possible. But touring its some of

the biggest challenges for orchestras around the world. We are talking about flight tickets (minimum 70 persons), buses for traveling between cities in a foreign country, accommodation (hotels, meals, etc.), posters, commercials, etc.

A big step forward would be to strive to make festivals and major events carbon-neutral by investing in offsetting programs. And as an artist, why not promote public transport, car-sharing, or cycling as eco-friendly alternatives for fans attending concerts and events? Also, there is a minimal possibility to travel by train. Another improvement we see is the rise of virtual concerts, which reduce the need for physical travel. Indeed, many artists or orchestras use live-streaming platforms for their performances, allowing them to reach a global audience without the carbon footprint associated with physical events. Technology is also being used for remote collaboration opportunities between artists and producers, again minimizing the need to travel and reducing the industry's carbon footprint. We are not talking about Vimeo or YouTube, of course. We are talking about Digital Concert Hall – www.digitalconcerthall.com (Berlin Philharmonic) or Virtual Concert Hall – www.virtualconcerthall.ro (Ploiesti Philharmonic – the only one in Romania – due to lack of human resources it is getting very difficult to promote it, although there are hundreds of hours of music material).

It is important that digital distribution and streaming platforms use renewable energy sources for their data centers and offer high-quality streaming options to reduce the need for constant re-downloading of music files. For example, the system Pay-Per-View, such as Netflix, but for concerts and shows could be a possibility.

2. Waste management in the music industry

In addition to energy consumption, the music industry can also reduce its environmental impact by focusing on waste management, especially recycling. This includes reducing the use of single-use plastics such as straws and plastic bags at concerts and events, as well as encouraging fans to compost their waste. Water conservation measures should also be implemented at studios, venues, and events to reduce overall water use.

The music industry can follow suit regarding merchandising, such as tote bags, water bottles, and clothing. We've all seen the t-shirts and hoodies sold outside concert halls with our favorite artists faces printed on them., even now with Mozart, Beethoven, or Bach. A good way to make this part of the industry more sustainable would be to source materials sustainably and use recycled materials for merchandise and packaging. In this way, the industry can also reduce its dependence on raw materials and reduce the amount of waste sent to landfills. And if the artists get the chance to develop some of these promotional materials, let's make sure they partner with eco-friendly companies.

A further step would be to use sustainable materials for physical products such as CDs and vinyl records, as well as minimize packaging waste and use recycled or biodegradable materials where possible. For example, also, now we have Spotify, YouTube, etc. So, for Philharmonics or Operas, it is possible to promote their music online; of course, being present in the concert hall is the most important thing. We are talking about also energy, vibe, hope and dreams, but even health.

3. Social responsibility in the music industry

Another important aspect of sustainability in the music industry is the promotion of sustainable practices in the industry and the supply chain in particular. Sustainability and fair trade go hand in hand in a way, as fair trade is a movement that promotes ethical and fair trading practices, ensuring that producers, particularly in some developing countries, receive a fair payment for their goods while focusing on social and environmental sustainability. In the music industry, this can mean working with suppliers who prioritize environmental stewardship and social responsibility and ensuring that fair trade practices are followed in producing merchandise and promotional materials. This links back to what we saw above about sourcing sustainable materials and using recycled materials for merchandise and packaging. Doing this allows you to source ethically and support sustainable development in communities worldwide.

Let's take another look at the fashion industry. We see a renewed interest in supporting local and artisanal craftsmanship and consumers appreciate handmade items, which help preserve traditional techniques and foster the link between consumers and designers. As an artist, what you can do is follow this trend and, wherever you can, encourage local production and promote local music scenes that support artists within their communities, reducing the need for extensive travel and transport.

4. Raising awareness for sustainable living

One of the most significant advantages of being an artist is that it gives you a platform and a global reach. As an artist, you can promote sustainability by raising awareness amongst your fans and fellow artists, and we've seen many big names do this, especially when talking about members of orchestras in Philharmonics or Operas.

There's a saying that goes "Be the change you wish to see in the world" and by adhering to the music industry's environmental standards, we can encourage others and even businesses to adopt more sustainable practices. Maybe a good example would be to support initiatives to create green spaces in concert halls or festivals, promoting environmental awareness and providing spaces for sustainable practices. Why not a concert hall with grass, trees and flowers, and we can enter barefoot? We can also explore and invest in emerging green technologies, such as sustainable audio equipment and energy-efficient lighting systems.

Overall, by implementing sustainable practices such as energy efficiency, waste management, and ethical sourcing, the music industry can reduce its ecological footprint and positively impact the planet, ensuring a more sustainable future for generations to come. But it's important to remember that the key to making the music industry more sustainable lies in a holistic and collaborative approach involving artists, industry professionals, the public, and stakeholders working together towards a common goal of environmental responsibility. So, we are mainly speaking about mentality, especially when discussing policies in sustainable management in music in the East.

Sustainability in the music industry involves more than environmental considerations; it also addresses the enduring viability of institutions and practices in areas such as opera houses, philharmonic orchestras, and music touring management. These cultural institutions and activities face complex challenges in maintaining their relevance, financial stability, and artistic integrity in a rapidly evolving world. Long-term sustainability in these contexts requires carefully balancing artistic excellence, audience engagement, resource management, and adaptability to changing societal trends.

Operas and philharmonics, often steeped in tradition, must find ways to appeal to contemporary audiences while preserving their artistic heritage. The demographic shift toward younger, more diverse audiences presents an opportunity but also a challenge, as traditional formats may not always resonate with modern tastes. Efforts to address this include programming innovations, collaborations with contemporary artists, and incorporating digital platforms to reach broader audiences. These strategies can enhance accessibility and inclusivity, helping to ensure the survival of these institutions in a culturally diverse and technologically advanced society.

Financial sustainability is another critical concern. Many operas and philharmonics rely heavily on a mix of ticket sales, donations, and government subsidies. However, fluctuating economic conditions and competing funding priorities can threaten their financial health. Diversifying revenue streams has become necessary, with strategies such as corporate sponsorships, innovative fundraising campaigns, and digital content monetization becoming increasingly prominent. Additionally, effective cost management, including efficient production processes and the strategic allocation of resources, plays a crucial role in maintaining operational viability.

Talent sustainability is also essential – cultivating and retaining skilled performers, conductors, and behind-the-scenes professionals require investment in education and training programs, competitive compensation, and career development opportunities. Sustainability encompasses logistical, financial, and cultural dimensions in music touring management. Extensive touring can pose significant financial risks, with rising transportation, accommodations, and production costs. Strategic planning is vital to minimize these risks while maximizing audience reach and revenue. Additionally, balancing the demands of touring with the well-being of artists and crew members is increasingly recognized as a critical factor in long-term success. Schedules that prioritize rest and recovery, fair labor practices, and mental health support contribute to a sustainable touring ecosystem. Cultural sustainability in touring involves fostering meaningful connections with local communities and respecting cultural contexts. Collaborating with local artists, incorporating regional influences, and designing events that resonate with diverse audiences can create lasting cultural impact and enhance the reputation of touring acts.

Ultimately, the sustainability of music management in operas, philharmonics, and touring requires a forward-thinking approach that embraces innovation while respecting tradition. By addressing the multifaceted challenges of audience engagement, financial stability, talent development, and cultural relevance, these sectors can ensure their continued vitality and contribution to the global cultural landscape.

Integrating music into climate policies

Orchestral music has the potential to play a pivotal role in communicating the necessity for change at every stage of consumption, particularly in relation to sustainability and environmental responsibility. Music, especially orchestral performances, can serve as a powerful medium to bridge this gap, using its emotional resonance and universal appeal to motivate tangible change in both individual and collective behaviors.

One way to leverage the power of music in this context is by integrating it into urban climate action policies. In many parts of Eastern Europe, particularly, there is a notable lack of comprehensive strategies not only for addressing climate change but also for supporting the cultural sector, including music and the arts. Cities could benefit from creating policies that connect cultural activities with environmental goals. For instance, by linking public transport systems to cultural and entertainment events, cities can reduce the environmental footprint of transportation while ensuring that attendees can safely and sustainably access venues. This integration of sustainability into the cultural infrastructure reduces carbon emissions and encourages public engagement with both the arts and environmental responsibility.

Furthermore, cities could explore tax incentives or investment opportunities for music venues and related infrastructure to support their decarbonization efforts. This might include retrofitting venues with energy-efficient technologies such as solar panels or improving soundproofing to enhance acoustic performance while also reducing energy consumption. These kinds of investments not only make cultural venues more sustainable but also send a strong message about the importance of integrating environmental responsibility into all sectors of society. Over time, such initiatives could reduce the need for local artists to travel extensively, significantly lowering the carbon emissions associated with touring.

Musicians, especially members of prominent orchestras and opera companies, possess a unique platform and influence that can resonate deeply within communities. For instance, philharmonic orchestras could collaborate with other institutions focused on environmental advocacy to create artist-in-residence opportunities, promoting a cross-disciplinary approach to addressing the climate crisis. High-profile events such as the George Enescu International Festival could prioritize collaborations with sustainability-focused organizations, amplifying the message that cultural events can serve as powerful vehicles for environmental education.

Moreover, orchestral music and cultural festivals can be powerful tools in designing sustainable infrastructure and temporary accommodations, offering valuable insights into how such spaces can be optimized for both functionality and environmental impact. Cultural venues, such as concert halls and opera houses, could be repurposed to serve broader community functions, such as providing warmth or shelter during extreme weather conditions, thus playing a dual role in cultural enrichment and disaster preparedness. This potential for cultural venues to serve as community hubs underscores the broader impact that music organizations can have in creating more sustainable and resilient communities.

With their broad public influence, musicians are uniquely positioned to become spokespeople for sustainability. By using their platforms to advocate for change, they can help shape attitudes toward the environment and inspire positive action on a global scale. However, for this influence to be fully realized, it must be embedded within national and local strategies that recognize the potential of music and the arts to drive change. In this way, orchestral music and cultural organizations can not only contribute to addressing the climate crisis but also become central players in the broader movement toward a more sustainable future.

Conclusions

In conclusion, the research on sustainable management in the music sector underscores the crucial role of adaptability and innovation in ensuring that musical cultural institutions, such as Philharmonics, Operas, and the private music industry, remain resilient in a rapidly evolving global landscape. As these institutions grapple with environmental, economic, and social pressures, the need to adopt sustainable practices becomes not just a matter of environmental responsibility but also a strategic necessity for their long-term viability. The research emphasizes that the integration of sustainability into the core management practices of these institutions can enhance their relevance and impact, ensuring that they continue to thrive while contributing to broader societal goals.

One of the study's central findings is that Philharmonics and Operas, while deeply rooted in tradition, must innovate and adapt to new environmental and social realities to maintain their role as cultural beacons. By their very nature, these institutions often face challenges in balancing their artistic missions with the need for operational sustainability. This approach allows for a more fluid integration of sustainable practices at every level of the organization, from the environmental management of venues to the way performances are conceptualized and executed.

By adopting eco-friendly policies and practices, private sector players in the music industry can set a powerful example for public institutions, demonstrating how sustainability can be embedded in both business models and cultural practices.

Moreover, the research underscores the importance of innovation in the broader context of sustainable management. Institutions across the music sector must adopt not only technological innovations but also new ways of thinking about their role in society. Sustainability is no longer solely about reducing carbon footprints or minimizing waste; it also involves rethinking the impact of these institutions on social issues, such as community engagement, education, and accessibility. For Philharmonics and Operas, this might include developing artist-in-residence programs or collaborations with other sectors, such as environmental organizations, to raise awareness about sustainability issues.

Furthermore, the study highlights leadership's vital role in driving the sustainability agenda within these institutions. Transformational leadership, in particular, can be highly effective in this context, as it motivates individuals within the organization to embrace change and take collective responsibility for achieving sustainability targets. Leaders in the music industry must also engage in continuous dialogue with

stakeholders, including artists, audiences, and policy-makers, to ensure that sustainability becomes an integral part of the organizational ethos.

The research also touches upon the importance of policy-making at both local and national levels to support sustainability efforts within the music sector. Governments can play a pivotal role in creating frameworks that incentivize sustainable practices, such as offering tax breaks for green infrastructure, providing funding for eco-friendly initiatives, or implementing stricter environmental regulations for large-scale events. The integration of music and sustainability in public policy can also enhance the visibility and support for these efforts, helping to build a more sustainable cultural ecosystem.

Ultimately, this study emphasizes that the path to sustainability for musical cultural institutions is multifaceted and requires a concerted effort across all management levels and all music industry sectors. From environmental stewardship to social responsibility, integrating sustainability into organizational practices represents both an ethical obligation and a strategic opportunity. Through proactive and forward-thinking management practices, Philharmonics, Operas, and the private music industry can continue to contribute to the cultural richness of society while ensuring that their operations remain viable and responsible in the face of pressing global challenges.

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