

The Scena Project: A Teaching Case Study on Digital Asset Management in the Theater Industry

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Abstract

The theater industry faces significant challenges such as high production costs, inefficient resource management, and environmental impacts, which jeopardize its long-term sustainability. Digital transformation offers a potential pathway, yet its adoption in the performing arts remains limited. This teaching case study examines *Scena*, an innovative digital platform that rethinks asset management in theatre by leveraging technologies such as 3D visualization and scenic asset digitization. By facilitating asset reuse, reducing waste, and introducing a circular economy principles, *Scena* addresses operational inefficiencies while fostering creative collaboration.

The case situates *Scena* within the Italian context, compares it with international solutions, and explores broader implications for digital innovation in cultural organizations. It is designed to engage learners in analyzing how digital transformation and sustainability strategies can reshape business models and stakeholder collaboration in the performing arts. The accompanying *teaching notes* provide instructors with learning objectives, theoretical frameworks, discussion questions, and experiential assignments, ensuring its applicability in academic and professional training settings.

Beyond its pedagogical purpose, the case highlights managerial insights into how digital platforms can drive systemic change in cultural institutions by improving resource efficiency, lowering costs, and promoting sustainable innovation

Keywords: Digital transformation, theaters, performing arts, sustainability, circular economy, digital platforms, teaching case study.

1. Introduction

The theater industry faces persistent challenges to its sustainability—high production costs, inefficient resource use, and growing environmental impact (Lee et al., 2020)—which are

The theater industry faces persistent challenges to its sustainability—high production costs, inefficient resource use, and growing environmental impact (Lee et al., 2020)—which are particularly evident in Italy, despite increased public funding. In 2022, the Fondo Unico per lo Spettacolo allocated €210 million to live performance, with €81 million to theater—a 30% increase from 2019—yet critical problems remain.

A pressing challenge is the management of scenic assets—backdrops, props, and architectural elements—which remain poorly handled. Reliance on disposable materials increases both waste and costs, while manual inventories and the absence of standardized digital systems hinder reuse and coordination.

Digital transformation can improve sustainability and efficiency in theater by shifting business models, processes, and strategies (Hess et al., 2016). Here, efficiency is not intended in the Taylorist sense of labor optimization, but rather as a sustainability-driven principle focused on resource optimization, circularity, and reduced environmental impact. Technologies such as computer-generated imagery (CGI), which enables the creation of digital sets and visual effects, and other interactive tools enhance creativity; however, their adoption remains limited, preventing many cultural organizations from realizing their full potential.

To frame this teaching case and its educational use, we introduce the guiding question: “How can digital tools be leveraged to design and implement sustainable business models in the performing arts sector?” It encourages learners to connect the Scena project to broader challenges and opportunities in digital transformation and sustainability. This work adopts Scena as an illustrative example to explore a broader methodological approach for designing and evaluating sustainable, digitally driven business models in the performing arts. The primary contribution lies in presenting the analytical

process, data collection methods, and evaluative framework applied to this context, which can be replicated or adapted to other cultural organizations facing similar challenges.

Scena is presented here as an illustrative example of how digital strategies in theater can succeed through inclusive and collaborative approaches, serving to demonstrate the broader methodological framework at the core of this teaching case. This collaborative dimension aligns with the concept of relational engagement (Ozanne, Davis, & Ekpo, 2023), which emphasizes sustained, multi-stakeholder interactions as a pathway to generating societal impact. In Scena's case, these engagements occur between theaters, designers, technicians, and cultural institutions, fostering mutual learning, trust, and co-created solutions that extend beyond single productions.

This approach also resonates with broader frameworks for societally impactful research, which emphasize shifting from traditional, linear dissemination models to collaborative, problem-oriented partnerships that integrate diverse stakeholder perspectives from the outset (Brennan et al., 2022).

This case study explores how digital transformation can support innovation and sustainability in the performing arts, using Scena as a focal point for examining and discussing new sustainable business models.

Scena is a digital platform that reimagines workflows in the performing arts, offering tools for shared resource management in set design to foster reuse and sustainability. It features a virtual 3D environment to simulate scenes, lighting, and assets—even in first-person view—enhancing planning and creative collaboration. Through 3D visualization and asset digitization, Scena reduces costs, supports circular economy models, and strengthens collaborative design. The innovation of Scena lies in integrating these different dimensions—digital asset management, collaborative networks, and circular economy practices—into a single platform, a combination rarely achieved in the performing arts sector.

Launched through an academic-industrial partnership in 2024-2025, Scena represents a pioneering effort to bridge tradition and innovation in the theater industry. The platform facilitates the collaborative management of scenic heritage and production services, allowing theaters to digitize

and share assets, such as set designs, costumes, and props, across an extensive network. This increased visibility fosters opportunities for reuse, rental, and resales, contributing to sustainability and economies of scale.

The platform fosters a community of practice among cultural organizations, promoting sustainable production aligned with international frameworks like the European Green Deal and the EU 2030 Agenda (United Nations, 2015). The urgency of adopting solutions like Scena is evident given the structural challenges facing the theater industry. The following sections examine how digital transformation—and Scena in particular—can help address these issues in the performing arts.

2. Reforming Asset Management Practices in Theater

The theater industry's sustainability is increasingly threatened by forced closures, economic losses, and limited audience engagement, pointing to an urgent need for structural innovation and digital adoption. During recent disruptions, many organizations moved performances online to stay connected with audiences, but this shift also exposed new challenges, such as technological barriers and digital fatigue.

While artists showed remarkable adaptability, over-relying on their “creative resilience” risks exploitation and burnout (Bonin-Rodriguez and Vakharia, 2020). The pandemic highlighted the need for entrepreneurial approaches in theater management that integrate effective and sustainable digital solutions (Fillis et al., 2022).

Despite some progress, the theater sector still lags in adopting innovative managerial processes beyond basic digital tools. Unlike the cinema industry—quick to adapt through streaming and digital distribution—many theaters face cultural resistance and fragmented investments (British Council, 2023). Technologies like artificial intelligence (AI) offer promising solutions for personalizing audience experiences, optimizing programming, and streamlining operations. However, concerns remain about preserving the “human touch” in theatrical storytelling.

Eco-scenography, which blends permaculture, placemaking, and community engagement, offers a promising path to sustainable performance spaces. To address rising costs, asset inefficiencies, and environmental impact, theaters must shift from product-based to process-oriented models that prioritize collaboration and resource sharing (British Council, 2023). Cultural institutions are increasingly called to integrate climate justice through eco-critical, transdisciplinary practices. Initiatives like the Living Stage show how the arts can promote both environmental responsibility and social change (Griffith University, 2024).

2.1. The promises of digital transformation

Digital transformation offers a crucial pathway for theaters to achieve greater sustainability, efficiency, and audience engagement (Hess et al., 2016). Digital tools can preserve and globalize cultural heritage while helping theaters reach younger and more diverse audiences, overcoming geographic and economic barriers (European Commission, 2024; United Nations, 2015). These tools act as catalysts for innovation, expanding reach, reimagining audience engagement, and fostering more inclusive cultural participation (Hartl & Hess, 2017).

Technologies such as digital twins, 3D visualization, and artificial intelligence can optimize workflows, enable resource reuse, and reduce environmental impact (Gong & Ribiere, 2021). This approach aligns with the principles of the circular economy, which promotes maintaining the value of resources for as long as possible through reuse, repair, refurbishment, and recycling, thereby reducing environmental impact and resource extraction (Geisendorf & Pietrulla, 2017).

However, in the context of the performing arts, the application of circular economy principles is often constrained by copyright and related right. Restrictions on ownership, licensing, and derivative works can prevent the reuse or adaptation of scenic assets, thereby limiting the potential environmental and economic benefits of a circular approach.

Virtual tours and interactive tools open new revenue streams beyond ticket sales while enhancing cultural accessibility (European Commission, 2021). These innovations not only improve operational efficiency but also allow theaters to reimagine their role as vibrant cultural hubs, aligning with frameworks such as the European Green Deal and the UN 2030 Agenda (United Nations, 2015). The performing arts are recognized as a key driver of economic and social value, contributing significantly to GDP and employment (UNESCO, 2022). The European Commission considers the performing arts pillars of diversity and resilience, supporting them through initiatives like Creative Europe (European Commission, 2024). Despite the current uneven adoption, the sector holds vast untapped potential to leverage these opportunities for long-term sustainability and competitiveness. What makes these opportunities innovative is not only the adoption of single digital tools, but their integration into systemic models that combine asset management, collaboration, and sustainability—an approach rarely realized in the performing arts.

2.2. The obstacles of traditional asset management

The uniqueness of each production makes asset archiving and storage inherently complex. Without standardized cataloging procedures or dedicated digital tools, many theaters rely on outdated, manual systems that hinder asset reuse and contribute to inefficiencies across the production cycle (Osservatorio Innovazione Digitale per la Cultura, 2024). Scenic assets—sets, costumes, props—are often stored without proper records, resulting in duplication, waste, and unnecessary expenditures. These inefficiencies are compounded by high production costs, fragmented funding, and the well-known ‘cost disease’ of the performing arts (Baumol & Bowen, 1966), which together limit financial sustainability and productivity growth. Inadequate storage and transport systems further make the reuse of assets difficult and sometimes less cost-effective than producing new ones (Sacco, 2011). The lack of a unified managerial approach connecting artistic vision with operational

needs further restricts innovation, while insufficient investment in technology prevents the adoption of efficient digital solutions (Hartl & Hess, 2017).

Delays in digital adoption amplify these challenges. In Italy, only 43% of theaters invested in digital innovation in 2023, with most efforts limited to marketing and ticketing. Advanced technologies remain largely unexplored: only 13% of theaters use augmented reality, and 68% do not use artificial intelligence at all, despite its potential for creating engaging content and optimizing processes (Osservatorio Innovazione Digitale per la Cultura, 2024). This is in stark contrast to other creative industries, such as gaming and music, where AI adoption is steadily increasing (European Commission, 2021). Without targeted strategies, theaters risk losing competitiveness, missing opportunities to modernize operations, diversify revenue streams, and enhance sustainability (Gong & Ribiere, 2021).

Environmental concerns add to these obstacles. Traditional production methods often rely on non-recyclable materials, generating significant waste. The absence of proper storage facilities and monitoring systems means valuable scenic elements are discarded rather than reused, exacerbating environmental impacts. Implementing sustainable practices—such as ISO 20121 standards—requires both financial resources and managerial commitment, which are frequently lacking in the sector.

These financial, operational, and environmental inefficiencies highlight the need for innovative management models that reduce fixed costs and maximize asset utilization. Building on the as-a-service paradigm, the Scena project introduces the concept of Theater Management as a Service (TaaS), shifting from ownership-based management toward shared asset models. By enabling theaters to access and share scenic assets, design tools, and production services through a centralized digital platform, this model supports circular economy principles, reduces waste, and lowers the financial burden of infrastructure investment—particularly for smaller or underfunded institutions.

The Scena project addresses these challenges by proposing a centralized, collaborative, and digitally integrated model for managing scenic assets—an approach that also provides a pedagogical opportunity to reflect on how digital platforms can operationalize circular economy principles in the performing arts.

3. Methodology

This case is informed by a mixed-method approach (benchmarking, interviews, focus group).

While SCENA serves as the illustrative case, the aim here is not methodological generalization but providing learners with data and insights to analyze strategies and operational models for digital transformation, sustainability, and collaboration in theater.

3.1. Benchmarking analysis

Benchmarking is a widely used methodology for assessing the competitive landscape, identifying best practices, and understanding market positioning (Camp, 1995). This study employs a comparative benchmarking approach to analyze existing platforms in the theater and performing arts sector, focusing on digital asset management, circular economy practices, and community-driven solutions. The goal is to identify market gaps and extract insights to inform the design of Scena as an innovative solution.

Following the principle of literal replication in multiple case studies (Yin, 2014), twelve platforms—7 Italian and 5 international—were reviewed for their alignment with Scena’s mission and market presence. They represent three business models (Münter, 2024): (1) acquisition and resale, (2) third-party facilitation, and (3) rental/sharing services.

- Acquisition and Resale of Assets, where platforms acquire materials from theaters and resell them, operating as multisided markets to optimize transactions.

- Facilitating Third-Party Transactions, where platforms serve as intermediaries, enabling direct exchanges between users without managing logistics or payments.
- Rental and Sharing of Technical Equipment, where platforms promote collaborative consumption, reducing costs and improving resource utilization.

To ensure a consistent analysis, platforms were grouped into three areas: sharing and rental models, networking-focused platforms, and management software solutions.

This framework supports a direct comparison with Scena, highlighting key gaps and best practices. A summary of the analyzed platforms is provided in Table 1.

Table 1. Summary of Benchmarking Platforms

Platform	Country	Year of Establishment	Core Service Offering
Nextstage	USA	2021	Rental or purchase of surplus materials or theater props recovered from sets or donations
Artstock	France	2009	Reduces waste from cultural activities through collection and recycling of materials and scenery
Récupscène	France	2018	Facilitates connections between those who no longer need scenery and those who can reuse it
Théaomai	France	2020	Community of artists and theater companies for networking and collaboration
Ready Set Recycle	Canada	2021	Promotes reuse of scenery, stage props, and costumes to prevent landfill waste
Filmpole (ex Co-rent)	Italy	2014	Sharing platform for film equipment, recently expanded to include professional search services

Scenaperta	Italy	-	Sale and rental of small scenic objects
Sell-set	Italy	2011	Portal for sale and rental of used stage props, promoting theater recycling
Teatro Off	Italy	-	Web platform facilitating communication between theater companies and venue managers
Opera ERP	Italy	2007	Digital management solution for cultural organizations
E. Rancati	Italy	1864	Renowned supplier for purchasing and renting scenic equipment
Artcalendar	Italy	-	Software for general show management

The analysis highlights a clear gap between Italian and international markets. In countries like the UK and France, platforms support material reuse and collaboration through structured digital systems. In contrast, most Italian initiatives remain traditional, focused on direct sales or rentals with minimal digital integration. This reveals a lack of platforms that combine digital archiving, resource sharing, and circular economy practices.

While benchmarking provides a comparative market overview, it does not fully capture the behavioral, managerial, and logistical challenges faced by theater professionals in adopting these solutions. To complement this analysis, the study also employed in-depth interviews and focus groups, allowing for a more detailed understanding of sector-specific needs. The next sections present these methodologies, their objectives, and their relevance to the research.

3.2. In-depth Interviews

To complement the benchmarking, twelve theater professionals from different roles and institutions were interviewed, followed by a focus group with nine participants. These sessions explored

challenges in asset management, adoption barriers, and expectations toward Scena, providing qualitative insights for the case. The interviews were aimed at collecting direct input on the managerial and technological needs of theater professionals to guide the design of Scena. In-depth interviews allow researchers to collect detailed and context-rich data by fostering open-ended discussions and encouraging interviewees to share their professional experiences.

Twelve professionals from Italian theaters of different sizes and roles (from technical directors to artistic managers) were interviewed, ensuring a diverse representation of perspectives. The selection criteria were established to align with Scena’s core objectives and included:

1. Professional expertise – Participants hold key decision-making roles in theaters, such as technical directors, artistic directors, general managers, and marketing specialists. Their direct involvement in scenic asset management and digital strategies ensures a deep understanding of sector challenges.
2. Institutional diversity – The sample includes professionals from large, medium-sized, and small theaters, ensuring representation from different types of organizations.
3. Theater type – The study involved professionals from public and private theaters, lyric and prose theaters, and experimental venues to ensure a comprehensive representation of different production processes.
4. Relevance to Scena’s objectives – The interviewees were selected based on their experience in scenic asset management, digital resource optimization, or sustainability practices, making their insights particularly valuable for evaluating Scena’s market fit.

A summary of the interviewees and their institutional affiliations is provided in Table 2.

Table 2. Interviewees’ role and institution

#	Interviewee’s Role	Type of Institution
1	Set Director	Large theater

2	Cultural Cooperation Manager	Large theater
3	Technical Director	Small theater
4	Theater Director	Small theater
5	Event Coordinator	Medium-sized theater
6	Theater Director	Small theater
7	General and Artistic Director	Large theater
8	Technical Manager	Small theater
9	Director	Medium-sized theater
10	General Director	Medium-sized theater
11	Superintendent and Artistic Director	Large theater
12	Executive Director	Medium-sized theater

Interviews were conducted using a semi-structured format to ensure both consistency and flexibility.

The questions addressed key themes identified through prior research and benchmarking, including:

- Scenic asset management – Current processes, challenges in storage and reuse, and digitalization of scenic materials.
- Production workflows – The life cycle of set design, from conception to disposal, and the professionals involved.
- Collaboration and networking – Synergies between theaters, suppliers, and other stakeholders in the production process.
- Sustainability and circular economy – Adoption of green practices, material recycling, and barriers to sustainability.
- Financial constraints and funding mechanisms – The impact of economic limitations and the role of public funding (e.g., the Fondo Unico per lo Spettacolo - FUS).

- Digital transformation and innovation – The adoption of new technologies in theater production and management.
- Scena’s potential impact – Perspectives on the platform’s ability to address industry inefficiencies and enhance sustainability.

The interviews were conducted between May and June 2024, with each lasting approximately two hours. All interviews were conducted in Italian, transcribed verbatim, and analyzed using qualitative content analysis to identify emerging patterns and recurrent themes.

The insights gathered from these interviews provide a comprehensive understanding of the current challenges and opportunities in the theater sector, particularly regarding digital transformation, scenic asset management, and sustainability. To further enrich this analysis, a focus group was conducted to foster collaborative discussions and validate the individual perspectives gathered. The following section details the methodology and outcomes of the focus group sessions.

3.3. Focus groups

Finally, a single focus group was conducted with nine professionals from eight Italian institutions, all previously interviewed and familiar with the Scena project. Its purpose was to enrich the findings from the benchmarking and interviews, offering additional insights through targeted discussion on key themes.

The group discussion, organized as a collective and interactive activity, allowed participants to share ideas and reflections in a highly collaborative environment. The focus group proved to be a crucial tool for deepening the information gathered from previous analyses, providing a more nuanced understanding compared to semi-structured interviews, thanks to the possibility of direct and dynamic interaction among participants (Ho, 2024). The focus group was designed to validate the insights obtained from interviews and benchmarking, deepening the understanding of priority features and operational challenges for Scena.

This integration of perspectives helped validate the preliminary findings and highlighted areas where Scena could further refine its approach to digital asset management, sustainability, and collaborative practices within the theater sector. To facilitate real-time interaction and active participation, Mentimeter was used. This online tool allowed participants to respond to questions in real-time by providing numerical ratings or textual answers, and when necessary, supplementing their responses with brief clarifications. This method ensured a dynamic and interactive discussion, enabling a more comprehensive collection of opinions.

The focus group took place in June 2024, in a webinar format, lasting two hours, and was divided into two main phases:

1. Phase I: Focused on the functioning, management, and advantages of the Scena platform, aiming to explore its core services and management challenges.
2. Phase II: Aimed to summarize and systematize the insights gathered, using a structured canvas to organize the key themes.

Phase I: Functioning, management, and advantages of the platform (5 questions): The first phase of the focus group was designed to investigate key aspects related to the Scena platform's functionality and management. This phase included five questions focusing on:

1. Drivers of usage – What would motivate theaters to adopt the platform.
2. Core services – Essential features that should be prioritized.
3. Complementary services – Additional features that could enhance user experience.
4. Warehouse management methods – Best practices for managing scenic assets.
5. Management of authorship – How to handle authorship rights and intellectual property.

At the end of this phase, participants were invited to share their opinions on the topics discussed, facilitating a deeper exploration of the challenges and opportunities identified.

Phase II: Participatory context analysis (4 questions): The second phase aimed to summarize and organize all the insights that emerged during the discussion, using a canvas model structured around four key dimensions:

1. Island: The objectives that the platform should pursue.
2. Wind: Factors that facilitate the adoption of the platform.
3. Anchor: Factors that inhibit the platform's diffusion.
4. Rocks: External factors that could pose challenges.

After each dimension was discussed, participants were asked to vote using Mentimeter, providing either a numerical rating or a brief textual explanation for their choices. This voting process enabled the creation of a synoptic view of the key themes, which was then used as the basis for a final round of comments and observations.

This structured approach allowed for a comprehensive reflection on the main challenges and opportunities for Scena, ensuring that the feedback gathered was both actionable and aligned with the project's strategic objectives.

The integration of diverse perspectives helped validate the preliminary findings and highlighted areas where Scena could further refine its approach to digital asset management, sustainability, and collaborative practices within the theater sector.

The findings from these different methodologies will be used to define strategic guidelines and functionalities for the Scena platform, providing empirical support for the design of its operational model. Rather than aiming at methodological contribution, this section provides empirical insights that form the basis for the teaching case discussion.

4. Findings

The study highlights four key findings on scenic asset management in the theater sector: inefficiencies in cataloging and reuse; the potential of a collaborative platform like Scena to enhance resource sharing and sustainability; barriers to digital transformation such as legal issues, logistics, and resistance to change; and the role of digitalization in improving efficiency. These findings stem from benchmarking, expert interviews, and focus groups, offering a comprehensive view of sector challenges and opportunities.

4.1. Inefficiencies in Scenic Asset Management

A major challenge that emerged is the lack of standardized cataloging and archiving practices for scenic assets. Many theaters rely on fragmented and outdated tracking systems, such as paper-based inventories or informal records, leading to disorganized storage and inefficient resource utilization. The absence of a centralized management system results in scenic elements being misplaced or forgotten, making reuse difficult and increasing production costs. The interviewed experts confirmed that disorganized storage practices and the lack of digital archiving tools further complicate access to resources and contribute to operational inefficiencies.

Benchmarking revealed that, unlike international platforms that have begun adopting structured resource management models, the Italian market remains highly fragmented. Theaters often produce new scenic elements rather than reusing existing ones because they lack visibility into what is available. This contributes to overproduction and waste, particularly due to the seasonal turnover of performances and public funding mechanisms that prioritize new productions over sustainable reuse. Previous research confirms that inefficiencies in cultural production are often driven by funding structures that emphasize new creative output rather than optimizing existing resources (Hartl and Hess, 2017).

Another critical issue is the declining availability of skilled professionals in set construction, maintenance, and restoration. The shortage of artisans with specialized knowledge makes scenic asset preservation and reuse more difficult. The interviewed experts emphasized that training programs and digital archiving solutions are necessary to sustain long-term resource management efforts. The scarcity of skilled technical professionals further complicates scenic asset management, reinforcing the need for structured digital solutions that promote reuse, minimize waste, and optimize material use (Janes & Sandell, 2019).

These inefficiencies provide a useful entry point for classroom discussion on how managerial practices and funding structures can either enable or obstruct sustainable innovation in the performing arts.

4.2. The Need for a Collaborative Platform for Resource Optimization

A second key finding is the sector’s strong interest in a collaborative model for managing scenic assets. Resource sharing would reduce costs, optimize material use, and minimize waste, supporting sustainable practices. Scena addresses these needs by serving as a digital hub for asset cataloging and exchange, enhancing efficiency and sustainability across the industry.

Benchmarking identified three main business models: acquisition and resale (e.g., Nextstage, Artstock), third-party facilitation (Récupscène, Ready Set Recycle), and rental/sharing services (Co-rent), illustrating the diversity of approaches in scenic asset management (Münter, 2024).

Table 3 summarizes these business models and highlights the gaps that a unified platform like Scena could fill by integrating different approaches.

Table 3. Overview of Business Models Adopted by Analyzed Platforms

Platform	Acquisition and Resale	Facilitating Third-Party Transactions	Rental and Sharing
Nextstage	✓		
Artstock	✓		
Récupscène		✓	

Ready Set		✓	
Recycle			
Co-rent			✓

Despite its benefits, several barriers hinder the adoption of digital scenic asset management. High logistical and organizational costs make it often cheaper to produce new sets than to store or transport existing ones. Legal and copyright issues also limit reuse, requiring authorization from designers and directors. Resistance to change persists, with digital tools seen as complex or secondary to other priorities. Interviewees suggested that involving suppliers and tech providers in Scena’s ecosystem could expand functionalities and support adoption. Experts also noted Scena’s potential to improve material exchange and reduce waste. Focusing on technical equipment—like motors, turntables, and rigging systems—rather than scenic elements could avoid copyright issues and meet strong industry interest.

4.3. Barriers to Digital Transformation and Sustainability

Despite the benefits of resource sharing, several barriers hinder digital transformation in the theater sector. High transportation and storage costs make scenic material reuse difficult, especially for large set pieces that require specialized handling. Existing platforms do not offer logistics or storage services for full sets, leaving a gap Scena could address through tailored infrastructure.

As discussed above, legal constraints remain a major barrier. Experts suggested that Scena simplify legal management, offering tools to handle permissions and contracts more efficiently. Focusing initially on the exchange of technical equipment, which presents fewer legal barriers, was suggested as a pragmatic approach to facilitate early adoption.

Resistance to digital transformation also emerged as a significant challenge within the sector. Many theater professionals perceive digitalization as an administrative burden rather than a tool to

streamline operations. Interviews and focus groups suggested that successful adoption would require a shift in mindset, where digital tools are seen as time-saving solutions rather than additional bureaucracy. Training programs and onboarding support could help demonstrate the platform's benefits and encourage adoption.

4.4. The Role of Digitalization in Enhancing Efficiency and Sustainability

A crucial finding of the study is the strategic role of digitalization in improving sustainability and operational efficiency within the theater sector, aligning with the research of Zbucnea et al. (2021). Digitalizing scenic asset management could significantly reduce costs and enhance resource optimization, preventing inefficiencies and material waste.

Scena's implementation of Business Process Model and Notation (BPMN) is key to integrating and streamlining its digital services (Zur Muehlen & Recker, 2008; Delgado et al., 2022). BPMN allows Scena to formalize workflows for asset cataloging, customer relationship management, and collaborative community engagement, ensuring that operational processes remain both efficient and user-friendly. This structured approach addresses inefficiencies and fosters sustainable practices such as scenic asset reuse and recycling. Figure 1 illustrates Scena's BPMN model, demonstrating how structured workflows optimize resource utilization while reducing production costs and waste. The model shows how theaters interact with the platform at different stages (asset upload, cataloging, search, transaction, and reuse), and how these workflows are integrated into Scena's community functions and legal management tools.

Figure 1. BPMN in Scena

While Scena’s ability to integrate standardized asset management, efficient logistics solutions, and simplified legal management positions it as a transformative solution for the theater sector, the key value of this teaching case lies in its transferable methodological approach. For learners, this discussion illustrates how different theoretical perspectives—digital transformation, circular economy, and stakeholder collaboration—can be applied to analyze practical challenges in the theater sector. The evaluative process, stakeholder engagement strategies, and analytical tools presented here can be adapted to a variety of cultural contexts beyond the performing arts.

Scena demonstrates how relational engagement - understood as sustained, multi-stakeholder interactions – can generate tangible value in the sustainable management of scenic assets. This collaborative orientation is not merely a theoretical principle but translates into two concrete findings that emerged from the analysis.

First, structured stakeholder engagement, enabled by a shared digital network, reduces sectoral fragmentation and improves asset management efficiency, fostering reuse while lowering costs and waste. Second, structured knowledge dissemination – through training tools and knowledge-sharing mechanisms embedded in the platform – enhances digital literacy and reduces barriers to the adoption of sustainable practices.

These findings converge in the Theater Management as a Service (TaaS) model described in Section 2.2, which operationalizes these insights: a system that shares assets, services, and design tools, reduces the burden of infrastructure investment, and incorporates solutions for the lawful reuse of materials, addressing copyright-related challenges.

In doing so, Scena offers a scalable and replicable approach that integrates digital transformation, circular economy principles, and multi-actor collaboration, with potential applicability well beyond the performing arts sector. Its innovation lies in combining asset management, legal tools, and collaborative engagement in one platform—a configuration not yet realized in the theater industry.

6. Conclusion

The Scena case study illustrates how digital transformation, collaborative management, and a focus on sustainability can reshape the theater industry. While Scena's platform and stakeholder engagement strategies highlight promising pathways—such as resource sharing, asset reutilization, and reducing environmental impacts—these findings do not suggest a one-size-fits-all approach. Instead, they reveal the potential for multiple models that align with each theater's specific context, resources, and cultural values.

Scena's experience suggests that the successful adoption of digital tools and circular models depends on several factors, including organizational willingness to experiment, stakeholder collaboration, and supportive policy environments. However, the degree to which other theaters might replicate or adapt Scena's approach remains open-ended. Each performing arts institution navigates unique challenges and opportunities, making Scena's insights a point of reflection rather than a definitive blueprint. The initiative serves as a foundation for further discussion on how technology and collaborative networks can address sector-wide challenges while maintaining artistic integrity.

The complexities of the theater ecosystem, including funding structures, regulatory constraints, and cultural expectations—mean that sustainable transformation will require ongoing dialogue, experimentation, and flexible adaptation. By examining Scena's development, cultural organizations can better understand both the opportunities and uncertainties associated with integrating digital innovation into traditional theater practices. Ultimately, the lessons from Scena offer a starting point for broader industry discussions on the future of sustainable theater management, leaving open the question of how each organization might interpret and apply these insights to its own evolving realities.

By improving resource use and promoting sustainability, it offers a scalable model aligned with trends in digital cultural management. Its impact reaches beyond performing arts, reflecting a broader shift toward data-driven, collaborative, and eco-conscious cultural practices.

Rather than providing an exhaustive technical description of the Scena platform, this teaching case focuses on illustrating a transferable process and methodological framework that can be adapted by other cultural organizations facing similar challenges.

This study adds to the discourse on digital sustainability, highlighting the role of technological innovation in the future of cultural production. As a teaching case, its ultimate value lies in stimulating classroom discussion, encouraging learners to critically analyze how digital innovation and sustainability can be integrated into diverse cultural contexts.

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