

Opera in industrial tourism locations: case studies and guidelines for sector expansion

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Abstract: Opera, traditionally rooted in static venues and long-established repertoires, can be reimagined through the evolving landscape of industrial tourism, which has gained prominence as a sustainable strategy to repurpose both disused and operational industrial sites. This intersection presents a unique opportunity for engineering-driven adaptive reuse strategies, transforming industrial spaces into innovative opera venues while improving social, economic, and environmental sustainability. This study explores this integration from an engineering perspective, identifying key factors necessary for the success of this synergy. The proposed framework is based on the quantitative analysis of 200 industrial tourism sites, from a dataset created in a prior study, supplemented by a qualitative analysis of some case studies to define guidelines for sector expansion in this underexplored area. The quantitative results gave an overview showing that sites offering an artistic proposal are 45 out of the 200 analysed (3 related to opera and classical music) and are mainly disused plants with building structure preserved and dealing with economic, social, and managerial sustainability. The qualitative analysis of the case studies identified best practices such as multifunctional spaces, diversification of offerings, and collaboration with public and private stakeholders. Guidelines for sector expansion are related to innovation of opera fruition, asset utilization and facility management, circular economy and industrial symbiosis, collaborative platforms and cross-sectoral networks, risk, and operations management.

Keywords: Industrial Tourism, Opera, Innovation, Sustainability.

1. Introduction

Opera houses face the challenge of balancing tradition with innovation. Cancellieri (2017) reveals that strong commitment to tradition facilitate the blending of traditional and modern elements, such as unconventional staging reinterpreting classical works. Especially high-status theatres have more chance to innovate and experiment with hybridity while maintaining legitimacy and reputation, considering that audiences favour traditional repertoire (Radu-Giurgiu, 2022). Despite increasing studies on audience engagement, traditional metrics fail to reflect the evolving social fabric. This detachment makes opera financially unsustainable and culturally disconnected. Opera is trying to evolve through innovative projects that bring performances to new spaces and involve diverse communities (Dorita, 2023).

A possible innovative approach may be using Industrial Tourism (InT) locations, operative or disused, as new venues to perform opera, improving social, economic, and environmental sustainability of both. InT has recently emerged promoting industrial locations through local organizations interested in the historical significance of abandoned sites or companies aiming to enhance their own brand image and ESG (Parrinello, 1993). Repurposing industrial sites for tourism ensures their preservation while providing educational and economic benefits (Theobald, 2012). The flourishing of artistic and cultural activities in urban peripheries contribute to urban, social, economic, and cultural transformation (Basile, 2024). However

successful cultural development requires not only new facilities but also management strategies to engage audiences and facilitate knowledge exchange. The process is shaped by the interaction between local and national policies (Bryson, 2007).

This study aims to examine the integration of opera and industrial tourism, focusing on key success factors. It presents a framework developed through the quantitative analysis of 200 InT sites, from a dataset created in a prior study (Coruzzolo, Roversi and Gamberini, 2025), to have an overview of the sector, and the qualitative analysis of case studies to define guidelines for sector expansion. Quantitative findings reveal that 45 out of the 200 sites have an artistic proposal, with 3 specifically featuring opera or classical music, and are mainly disused plants with building structure preserved, dealing with economic, social, and managerial sustainability. The qualitative analysis highlights replicable best practices such as multifunctional spaces, diversified offerings, and collaboration with both public and private stakeholders. Combining these two analyses, guidelines for sector expansion have been deduced. They are related to innovation of opera fruition, asset utilization and facility management, circular economy and industrial symbiosis, collaborative platforms and cross-sectoral networks, risk, and operations management. The paper is structured as follows: section 2 reviews the relevant literature, section 3 explains the aims and objectives of the research and how these were addressed, section 4 presents key findings, section 5 discusses them, and section 6 draws a conclusion.

2. Literature review

In literature, the relationship between opera and industry is expressed in various ways: often as sponsorship relationships (Ikävalko, 2003) and in some cases with performances in operational (Van Brugen, 2013; Ross, 2015) and disused sites (King, 1997; Bassuet *et al.*, 2023), or as warehouses (Primavilla and Trisha, 2025) or laboratories (Teatro alla Scala, 2025) useful for production in former industrial spaces. The focus tends to be on aspects of artistic innovation rather than on aspects of management and sustainability linked to the industrial component. Furthermore, these are individual cases, useful as case studies, but which do not consider a broad and systematic vision. This systematic vision is present instead in the analysis of the innovation in opera and of the management and the sustainability of InT, but separately.

On one side literature, to bring innovation in opera sector, suggests different approaches. Using technological innovations can transform productions impacting not only staging, makeup, and costumes but also expand opera's reach to new audiences through media integration (Heyer, 2008). Another way to attract wider audiences are classical crossover, blending classical and popular music (Navickaitė-Martinelli, 2022). In Italy, initiatives like OperaCamion in Rome, which stages opera in public squares, and Palermo's Danisinni project, which integrates local residents into productions, demonstrate a shift towards social inclusion (Borchi, 2018). Ultimately, opera theatres must adapt to changing social dynamics, making their spaces more open, multifunctional, and relevant to contemporary audiences (Tovslid and Salvesen, 2023). All this highlights the need for a strategic approach to cultural policy balancing artistic innovation, financial sustainability, and community engagement.

On the other side, management, and sustainability characteristics of InT are analysed by the literature. Interest in preserving industrial heritage gained momentum in the late 20th century, driven by recommendations from scientists, artists, government bodies, private organizations, and cultural associations that recognized their historical and aesthetic significance. Today, industrial heritage is widely valued and protected across Europe, enhancing local economies, cultural identity, quality of life, and alternative tourism through strategic reuse (Xie, 2015) in line with sustainability and circularity of industrial systems. Industrial buildings have a great adaptability linked to some structural characteristics: solid structure, good thermal inertia, good for passive energy-saving, large open spaces and high ceilings, large, glazed surfaces providing natural light (Riva, 2008). Moreover, the strategic location of these buildings within or near urban centres, often well-served by infrastructure, further enhances their potential for redevelopment (Donnarumma, 2013). But this is not enough, creating local cultural and artistic spaces requires collaboration among various stakeholders, including local

governments, cultural and tourism institutions, and non-governmental organizations, as well as sufficient resources. Successful development depends on establishing shared visions, goals, and desired functions among these actors. However, differing priorities and potential conflicts with local tourism policies make decision-making complex (Czekajski, 2020). Multiple criteria are needed to address the challenges of balancing diverse stakeholder interests and optimizing the development (Nair *et al.*, 2012).

Therefore, it can be deduced that there is a lack of a systematic analysis with an engineering approach on the collaboration between opera and InT in Italy. This paper aims to fill this gap by focusing on a quantitative and qualitative analysis that suggests best practices for the inclusion of opera as an innovative form of InT.

3. Method

The objective of this study is to investigate the integration between opera and InT from an engineering viewpoint, highlighting the key factors essential for the success of this collaboration. Using an engineering approach, a framework was developed: a systemic quantitative analysis of 200 InT sites deepened with a qualitative analysis of case studies.

The quantitative analysis, aiming to have an overview on the sector in Italy, was based on a dataset created in a prior study (Coruzzolo, Roversi and Gamberini, 2025) consisting in the classification of 200 InT sites. In this paper we considered only some of the previous classification categories, described in Appendix A, useful for the analysis: type of plant, type of activities, aims, interventions and dimensions of sustainability. In the previous study the classification was general, in this paper we focused on sites in the artistic touristic field to deepen the classification about the artistic proposal. Therefore, we extended the previous classification with three mutually exclusive attributes to define the category “artistic touristic field”:

- Opera and Classic Music (OCM), opera or classical music proposal, specific space design.
- Theatre and Live Music (TLM), theatrical proposal and live music but not classical.
- Art exhibitions and Theatre (AT), exhibition or theatrical proposal not linked to music.

After this further classification, we aimed to analyse statistically the artistic touristic field through InT classification categories (Appendix A) and to compare it with the general situation of InT in Italy, proposed in Coruzzolo, Roversi and Gamberini (2025).

The qualitative analysis intended to make an in-depth analysis of best practices identified in some case studies. We chose the case studies among the dataset classified as OCM and then made further research looking for InT locations having an opera or classical music proposal.

The combination of these two analyses led to the definition of some guidelines to expand this hybrid sector.

4.Results

4.1 Quantitative results – dataset

Classification showed that 45 sites are artistic touristic field plants (22,5% of the total), with 3 OCM (1,5% of the total; 6,7% of artistic touristic field), 16 TLM (8% of the total; 35,6% of artistic touristic field) and 26 AT (13% of the total; 57,8% of artistic touristic field).

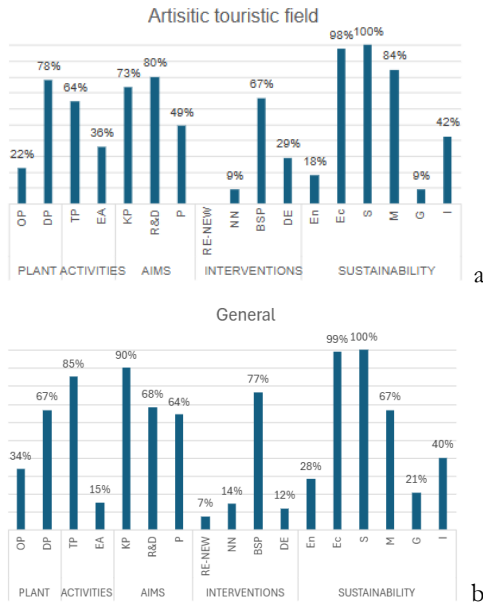


Figure 1: Histograms of attributes in artistic touristic field (1a) vs. general situation (1b)

The two histograms in Figure 1 show a synthesis of the classification focusing on the attributes described in Appendix A. Figure 1a refers to the sites which have artistic touristic field, Figure 1b refers to the total of the sites. The values are percentages relative respectively to the 45 sites in artistic touristic field (Figure 1a), and the total of 200 sites in the dataset (Figure 1b).

4.2 Qualitative results - case studies

We chose as case studies the 3 sites hosting Opera and Classic Music (OCM), among the 200 InT sites of the dataset created by Coruzzolo, Roversi and Gamberini (2025). This way we could also consider their classification attributes (in Table 1), as a link between the two analyses. Analysing these sites we focused on the renewal, the stakeholders involved and the artistic and opera proposal.

OCM	Plant	Activities	Aims	Interventions	Sustainability
Venice Arsenal	DP	EA	R&D	BSP	Ec, S, M, I
“Cantieri culturali alla Zisa”	DP	EA	R&D, KP	BSP	En, Ec, S, M, I
“Niccolò Paganini” Auditorium	DP	EA	R&D	BSP	En, Ec, S, M, I

Table 1: classification of OCM sites

We made further research looking for InT Operative Plants (OP) in Italy having an opera or classical music proposal. We found only a company organizing opera, music and theatre events inside plants codesigned to promote the brand (B.Art Marche, 2025) and a company which invited opera singers and a small orchestra to launch a new product (Oikos - architetture d’ingresso, 2025). In both cases, they are spot events just for close customers.

4.2.1 Venice Arsenal

Venice Arsenal declined during 20th century because of the downsizing of national navy. Starting in the 1980s, key buildings were restored to host the Biennale of Art and Architecture, while the Italian Navy retained control of one-third of the site (Brusatin, 1980). EU supported the redevelopment, increasing Academic and international interest (Europa Nostra Scientific Council, 2012). Since the 1990s, the northern section has been repurposed for industrial and research activities and later other companies have settled. In 2013 the site was transferred free of charge to the Municipality (Clark, 2017). Since 1981 Venice Biennale has restored spaces for exhibitions, offices, and services. The organization plays a leading role in contemporary artistic innovation through exhibitions, performances, research, and education (La Biennale di Venezia, 2023b). Since 2000 several venues have been redeveloped for the Performing Arts sectors: Dance, Music, and Theatre. These spaces combine historical significance with modern stage technologies. Here contemporary operas were shown during the Music Biennale along the years (La Biennale di Venezia, 2023a).

4.2.2 “Cantieri culturali alla Zisa”

“Cantieri culturali alla Zisa” in Palermo is located in a former plant for furniture, and later planes, production. With all activity ended in 1968, in 1995 the Municipality purchased the area (Di Natale and Lanzarone, 2013). For five years it was revived with artistic and cultural initiatives, then it declined due to political changes and economic crisis (Giambrone, 2006). Since 2011, a grassroots civic group created a participatory process to reopen unused buildings for public and artistic use, creating a network between cultural institutions, associations, and citizens, establishing a permanent research lab in partnership with the University of Palermo’s Architecture Department (Marsala, 2013). Now it is a cultural hub hosting exhibitions, performances, education, and community initiatives, building a hybrid community of artists, students, residents, and innovators (Turismo Comune di Palermo, 2025a). Many associations offer opportunities of education and experimentation in theatre, music, and dance, like Teatro Biondo’s School of Performing Arts. In 2017 the class concluded with a performance of Verdi’s Macbeth, directed by Emma Dante, at Edinburgh International Festival (Teatro Biondo, 2025; Turismo Comune di Palermo, 2025b).

4.2.3 “Niccolò Paganini” Auditorium

The former sugar factory in Parma was shut down in 1968. The Municipality of Parma acquired the site in 1980, but only in late 1990s a restoration initiative was led by architect Renzo Piano and made feasible through a modification to the city’s general urban plan (Donnarumma, 2013). The former main production building was transformed into “Niccolò Paganini” Auditorium, which features a main hall, preceded by a foyer and a covered outdoor space (Teatro Regio Parma, 2025). To ensure optimal acoustics, a range of technical and structural solutions were employed (Fondazione Arturo Toscanini, 2025). The Auditorium is part of “Paganini Congressi”, founded in January 2015 on the initiative of the two main musical institutions of the city of Parma: “Teatro Regio” Foundation and the “Arturo Toscanini” Foundation. It comprehends also Toscanini Philharmonic Music Production Centre, underground foyer, conference rooms, and the park which frames the complex. Multipurpose rooms of assorted sizes and audio production spaces are available for events, conferences, concerts, multimedia (Paganini Congressi, 2025).

5. Discussion

Discussion of results will be organized into quantitative and qualitative analysis to draw different insights.

5.1 Quantitative analysis

This analysis of quantitative results gave an overview of in InT related to art in Italy, enriching the previous research by Coruzzolo, Roversi and Gamberini (2025) that focused on general classification of InT sites. Considering the classification of the artistic touristic proposal, it can be noted that Art exhibitions and Theatre (AT) is the most widespread, since the use of sites for artistic and theatrical experiences or exhibitions is more easily feasible without particular space requirements and with lower costs. Theatre and Live Music (TLM) are also quite widespread, even though larger spaces with good acoustics and more technical equipment are required. Opera and Classic Music (OCM) is the least widespread, with only three sites, demonstrating that it is still a small sector. Considering Figure 1 and the categories in Appendix A, following characteristics of artistic touristic sites can be observed, also comparing to InT in general:

- Plants are more frequently Disused Plants ($\Delta DP = +11\%$, with Δ compared to the general situation), as an artistic proposal is more easily applicable repurposing the plant, although this sometimes also happens in Operative Plants.
- Activities are mainly Touristic Proposal Only, although Economic Activities are more frequent compared to the general situation ($\Delta EA = +21\%$), enriching the artistic touristic proposal with commercial activities and services which bring profits and attract various targets.
- Aims are more frequently Recovery and Development ($\Delta R\&D = +12\%$), and less Knowledge of the Past

($\Delta KP = -17\%$) and Promotion ($\Delta P = -15\%$), as the artistic proposal is often offered in renewed Disused Plants that sometimes put in the background the narration of the industrial past and the promotion of the company's entrepreneurial vision.

- Interventions are mainly Building Structure Preservation, even though less frequently compared to the general situation ($\Delta BSP = -10\%$), more Decorative Elements ($\Delta DE = +17\%$), and less No Intervention ($\Delta NN = -5\%$), with RE-NEW absent. The new artistic function more often leads to making the plant an aesthetic container of a new project, even though the original structure is often maintained in order to adapt to the new tourist proposal.
- Sustainability is mainly Social and Economic, then Managerial, more frequently compared to general situation ($\Delta M = +17\%$), slightly more Infrastructural ($\Delta I = +2\%$), and less Environmental and Governance ($\Delta En = -10\%$, $\Delta G = -12\%$). The creation of these renewals in an artistic perspective requires the involvement of various partners but above all at a local and specific level for the project rather than extended networks that create sector policies. Economic and Social sustainability remain fundamental, while the Environmental one is put in the background although it could be linked to the artistic aspect.

From this analysis, useful information can be obtained for sector expansion and to be explored in more depth with case studies. The sites with artistic touristic proposal are mostly Disused Plants, a consolidated format but an expansion in Operative Plants is an interesting opportunity. The presence of other Economic Activities is quite widespread, but it can be increased by promoting economic sustainability and attracting various targets. The majority of Recovery and Development rather than Knowledge of the Past and Promotion as aims demonstrates a greater importance of the relationship with the local community in the cultural proposal, however the link with the industrial and entrepreneurial aspect can be an area of expansion. The structural interventions maintain the aesthetics of the original site (BSP, DE, NN) allowing a peculiar characterization that creates an interesting combination with art. Social and Economic sustainability are established, and Managerial sustainability is very strong due to collaboration between entities; on the contrary, Environmental sustainability requires an expansion in the cultural field, also in line with EU indications and meeting with Operative Plants can be a win-win opportunity.

5.2 Qualitative analysis

Starting from the classification of previous analysis, as can be seen in Table 1, all three cases are Disused Plants with Building Structure Preserved aiming for Recovery and Development, and dealing with Economic, Social and Managerial sustainability, in line artistic touristic field. In addition, they have other Economic Activities and Infrastructural sustainability, in line with the increased percentage values of the artistic touristic field sites

compared to the general situation. Moreover “Cantieri culturali alla Zisa” and “Niccolò Paganini” Auditorium have Environmental sustainability.

In line with these considerations, best practices common to the case studies were sought to outline the guidelines for sector expansion. In all three cases renovation projects began with the involvement of local public and private stakeholders, with the support of international funding and already having an artistic purpose. In all three cases Economic, Social and Managerial Sustainability were crucial, but in diverse ways. In all three cases the spaces are versatile and equipped to be adaptable to different functions, such as education, experimentation, and performance, but also usable for events of other kinds. Opera and classical music, together with other cultural proposals, reach huge audiences hybridizing with other arts disciplines, unconventional venues, thanks to industrial Building Structure Preserved, and new technologies. Moreover, in all three cases there are also other Economic Activities, such as services or commercial companies, which diversify the offerings.

5.3 Guidelines for sector expansion

Combining the two previous analyses, the following guidelines for sector expansion have been deduced:

- To expand in already existing InT sites in artistic touristic field, considering Social sustainability, opera fruition should be innovated outside opera houses reducing people’s elitist idea of opera, giving anyway high-quality experiences (Lirica Tamagno, 2024; Urban Opera, 2024). New ways of involving people, making them feel part of the opera in first person can create a new kind of relationship and attract new potential younger audience. This can be done with educational initiatives with schools, (Pantouvaki, 2012; Kovačič, 2017) with community involvement in the creation of the opera or with the use of immersive technology like Virtual or Augmented Reality (Scorolli et al., 2023). From a marketing point of view also hybridizing with pop culture and more mainstream kinds of art can be a winning strategy to approach new target. An example is Luciano Pavarotti, who became the most recognized name in opera, embodying the genre in popular culture (Newell and Newell, 2014; Alnasser and Yi, 2023). Based on the cultural myth of Pavarotti also new opera experiences can be created to reach both older and younger audiences.
- To expand in new Operative Plants in multifunctional spaces, considering Economic sustainability, companies should focus on asset utilization and facility management. From a corporate perspective, unused or underutilized industrial spaces, such as warehouses, workshops, or depots, constitute financial liabilities, functioning as non-productive cost centres. However, by hosting artistic or cultural activities, these spaces can be transformed into multifunctional assets that generate value beyond traditional industrial use. From an engineering standpoint, this entails a multifunctional optimization of spatial usage.

Key tools in this process include adaptive plant design, life cycle analysis, and return-on-investment (ROI) assessments tailored to cultural activities. From an artistic standpoint, new productions frequently opt to present classic operas with modernized staging. These updates aim to reveal new interpretations or provoke reactions, as artistic exploration, and strategies to engage or expand audiences (Radu-Giurgiu, 2022; Cancellieri, 2017). This can be the case of InT locations with an artistic proposal that can offer such experience, merging contrasting atmospheres between industry and art (O’Connell, 2014).

- To expand in new Operative Plants, considering Environmental sustainability, companies should focus on circular economy and industrial symbiosis. Integrating artistic activities within industrial contexts contributes significantly to achieving ESG and sustainability goals by promoting the reuse of materials, spaces, and energy. For instance, operatic sets can be constructed using reclaimed wood, discarded textiles, and leftover paint from industrial processes. From an engineering perspective, this requires modelling systems of industrial symbiosis, where artistic workshops repurpose industrial waste or surplus energy. Performance indicators include the reuse rate, avoided CO₂ emissions, and the creation of new value chains. Opera is dealing as well with Environmental impact issue and EU is pushing to find cultural sustainable strategies, so this could be a win-win solution.
- To expand in new Operative Plants, considering Managerial sustainability, diversification of offerings, and collaboration with public and private stakeholders, companies should focus on collaborative platforms and cross-sectoral networks. Corporate collaboration with cultural institutions, such as opera houses, can open new revenue streams, enhance brand value, and improve the company's social positioning. In this framework, opera and performing arts are not merely cultural products but become strategic components of an industrial-cultural platform. Opera can also become a new way to communicate companies’ brand image, corporate culture, and entrepreneurial view, linking them with Made in Italy, beauty, and art (B.Art Marche, 2025; Oikos, 2025). From an engineering and organizational standpoint, this involves the development of collaborative platforms, stakeholder management, and cross-sectoral co-creation of value.

Hosting the public or artists within operational industrial sites introduces inherent risks related to safety, access control, and logistics. Nevertheless, these risks can be mitigated by significant visibility gains and reputational benefits. From a technical perspective, this necessitates a rethinking of operational models: schedules, flows, fire regulations, and spatial zoning must be restructured accordingly. Advanced tools such as dual-use protocols, digital twin simulations, and predictive resource management models provide strategic support in navigating these complexities.

6. Conclusion

In conclusion, this research underscores the significant potential of reimagining opera within the context of industrial tourism, offering a transformative approach to both cultural production and sustainable site reuse. By bridging the gap between the traditionally static world of opera and the dynamic, revitalizing potential of industrial spaces, this study highlights how engineering-led adaptive reuse strategies can foster innovation in cultural engagement while addressing key sustainability goals. Through a comprehensive quantitative analysis of 200 industrial tourism sites and qualitative analysis of selected case studies, the research identifies critical success factors and best practices (ranging from multifunctional space design to cross-sector collaboration) that can guide future initiatives. The resulting framework provides actionable guidelines for expanding this promising but underexplored sector, emphasizing innovation in opera presentation, efficient asset and facility management, circular economy principles, and integrated stakeholder networks. Ultimately, this work lays the foundation for a new paradigm in cultural venue development, one that aligns heritage preservation with contemporary artistic expression and sustainable industrial systems.

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References

- Alnasser, N.S. and Yi, L.J. (2023) ‘Strategies applied by different arts and cultural organizations for their audience development: A comparative review’, *Heliyon*. Elsevier Ltd.
- B.Art Marche (2025) *Villa InCanto, B.Art Marche*. Available at: <https://www.bartmarche.it/enti/villa-incanto/> (Accessed: 23 April 2025).
- Basile, M. (2024) ‘Arts and culture in the city: Peripheral centrality, cultural vitality, and urban change in inner suburbs’, *Cities*, 150.
- Bassuet, A. et al. (2023) *The design of the snfic opera theatre auditorium and a reflection of the reciprocal influence between opera theatre and concert hall design*. Available at: <https://www.bbc.com/news/av/21154741> (Accessed: 12 June 2025).
- La Biennale di Venezia (2023a) *Arsenale - Teatri e spazi di spettacolo*. Available at: <https://www.labiennale.org/it/luoghi/arsenale-teatri-e-spazi-di-spettacolo> (Accessed: 8 April 2025).
- La Biennale di Venezia (2023b) *L'istituzione*. Available at: <https://www.labiennale.org/it/listituzione> (Accessed: 8 April 2025).
- Borchi, A. (2018) ‘Culture as commons: theoretical challenges and empirical evidence from occupied public spaces in Italy’, *Cultural Trends*, 27, pp. 33–45.
- Van Brugen, S. (2013) *What is Silent Opera?*, BBC. Available at: <https://www.bbc.com/news/av/21154741> (Accessed: 12 June 2025).
- Brusatin, M. (1980) ‘The Tana reopened: Machines and workshops of the Arsenal of Venice.’, in P. Portoghesi et al. (eds) *The Presence of the Past. First International Exhibition of Architecture – Venice Biennale 80*. Academy Editions. London.
- Bryson, J.R. (2007) ‘Arts, dance, cultural infrastructure, and city regeneration: Knowledge, audience development, networks, and conventions, and the relocation of a Royal Ballet company from London to Birmingham’, *Norsk Geografisk Tidsskrift*, 61(3), pp. 98–110.
- Cancellieri, G. (2017) *Exploring how market identity shapes hybridity: empirical evidence from the field of Italian opera* JOURNAL OF MARKETING TRENDS-OPERA, *Journal of Marketing Trends*.
- Clark, C. (2017) ‘Venice arsenale: Tourist magnet and the return of innovation’, *International Journal of Heritage Architecture: Studies, Repairs and Maintenance*, 1(2), pp. 185–194.
- Coruzzolo, A.M., Roversi, A. and Gamberini, R. (2025) ‘Sustainable industrial tourism: an in-depth analysis of the Italian landscape’, *Current Issues in Tourism*, pp. 1–24. Available at: <https://doi.org/10.1080/13683500.2025.2486546>.
- Czekajski, M. (2020) ‘Creating a new cultural tourism product related to local post-industrial heritage as a multiple criteria decision aiding problem - multiple criteria problems in cultural tourism, decisions on new cultural tourism products’, *Multiple Criteria Decision Making*, 15, pp. 93–118.
- Donnarumma, G. (2013) ‘Il fenomeno della dismissione dell’edilizia industriale e le potenzialità di recupero e riconversione funzionale’, in.
- Dorita, H. (2023) ‘51. Performance spaces and spatial performativity: Theatre has left the building’, in R. Remshardt (ed.) *The Routledge Companion to Contemporary European Theatre and Performance*. London: Routledge.
- Europa Nostra Scientific Council (2012) ‘The reuse of ancient fortified settlements from middle ages to early modern time.’, *Scientific Bulletin 65 European Commission* [Preprint].
- Fior, M. (2012) ‘Le potenzialità del riuso per la città storica.’, *Planum. The Journal of Urbanism*, 25.
- FONDAZIONE ARTURO TOSCANINI (2025) *Auditorium Paganini, FONDAZIONE ARTURO TOSCANINI*. Available at: <https://www.fondazionetoscanini.it/it/luoghi/auditorium-m-paganini/> (Accessed: 19 April 2025).
- Giambrone, F. (2006) *I cantieri di Palermo. Azione di governo e politiche culturali per le città*. Nicolodi. Rovereto.

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- Heyer, P. (2008) ‘Live from the Met: Digital Broadcast Cinema, Medium Theory, and Opera for the Masses’, *Canadian Journal of Communication*, 33, pp. 591–604.
- Ikävälko, M. (2003) *Relational exchange and commitment in sponsorship - Case: Finnish National Opera and Sampo*.
- King, B.A. (1997) *Crash Test Opera, Wired*. Available at: <https://www.wired.com/1997/05/crash-test-opera/> (Accessed: 12 June 2025).
- Kovačić, M. (2017) *Musical Taste, Preferences, and Identifications of Young People: How to Approach Young People with Education to Opera*.
- Lirica Tamagno (2024) *Opera OFF, Lirica Tamagno*. Available at: <http://www.lirica-tamagno.it/opera-off/> (Accessed: 23 April 2025).
- Marsala, G. (2013) ‘Architettura, Città, Partecipazione. Nuove pratiche per le trasformazioni urbane. Il caso dei Cantieri Culturali alla Zisa di Palermo’.
- Maule, E. (2012) ‘Theater Activities for Jung Opera Audience: An Educational Urgency’, *Journal of Social Sciences*, 8(2), pp. 182–188.
- Nair, M.B. *et al.* (2012) ‘Multi-criteria Decision Making Approach for Responsible Tourism Management’, *The Malaysian Forester*, 75, pp. 135–145.
- Di Natale, E. and Lanzarone, F. (2013) *Recupero delle ex Officine Ducrot, oggi Cantieri culturali alla Zisa a Palermo*.
- Navickaitė-Martinelli, L. (2022) ‘Reaching Out to the Audience: Crossover Gestures in Musical Performance’, *Lithuanian Musicology*, 23, pp. 89–98.
- Newell, C. and Newell, G. (2014) ‘Opera singers as pop stars: opera within the popular music industry’, in P. Fryer (ed.) *Opera in the Media Age: Essays on Art, Technology and Popular Culture*. McFarland.
- O’Connell, S. (2014) ‘Making culture popular: opera and the media industries’, in P. Fryer (ed.) *Opera in the Media Age: Essays on Art, Technology and Popular Culture*. McFarland, pp. 32–42.
- Oikos - architetture d’ingresso (2025) *Oikos Venezia, quando la musica lirica abbraccia il prodotto industriale, Oikos - architetture d’ingresso*. Available at: <https://oikos.it/it/news/oikos-venezia-quando-la-musica-lirica-abbraccia-il-prodotto-industriale/> (Accessed: 23 April 2025).
- Paganini Congressi (2025) *Paganini Congressi - events & conference factory, Paganini Congressi*. Available at: <https://www.paganinicongressi.it/> (Accessed: 19 April 2025).
- Pantouvaki, S. (2012) ‘The Barber of Seville: Creating an Opera Design Project For and By the Youth’, in *The Art of Research IV*. Helsinki.
- Parrinello, G.L. (1993) ‘Motivation and anticipation in post-industrial tourism’, *Annals of Tourism Research*, 20(2), pp. 233–249.
- Primavilla, F. and Trisha, T. (2025) *Artists in this former pasta factory are preserving Italian opera traditions, AP news*. Available at: [https://apnews.com/article/italy-rome-opera-puccini-costumes-design-](https://apnews.com/article/italy-rome-opera-puccini-costumes-design-df7006c0f6ef1ff89f36246c7812880e)
[df7006c0f6ef1ff89f36246c7812880e](https://apnews.com/article/italy-rome-opera-puccini-costumes-design-df7006c0f6ef1ff89f36246c7812880e) (Accessed: 12 June 2025).
- Radu-Giurgiu, C. (2022) ‘A Perspective on the Opera Audience of the 21st Century’, *Studia Universitatis Babeş-Bolyai Musica*, 67(1), pp. 119–137.
- Riva, G. (2008) ‘Architettura e costruzioni industriali. Tecnologie per un recupero sostenibile.’, in F. Labelli and Marini S. (eds) *L’architettura e le sue declinazioni*. Verona: Iper testo Edizioni, pp. 321–330.
- Roll, J. and Horst, S.O. (2017) ‘The Branding Potential for the Digital Transmission of Live-Operas to the Cinema: An International Comparison of Estonia and Germany’, *Baltic Screen Media Review*, 50, pp. 90–109.
- Ross, A. (2015) *Opera on Location, The New Yorker*. Available at: <https://www.newyorker.com/magazine/2015/11/16/opera-on-location> (Accessed: 12 June 2025).
- Scorrolli, C. *et al.* (2023) ‘Would you rather come to a tango concert in theater or in VR? Aesthetic emotions & social presence in musical experiences, either live, 2D or 3D’, *Computers in Human Behavior*, 149.
- Teatro alla Scala (2025) *I laboratori, Teatro alla Scala*. Available at: <https://www.teatroallascala.org/it/visita/i-laboratori.html> (Accessed: 12 June 2025).
- Teatro Biondo (2025) *Corso di laurea in DAMS curriculum “Recitazione e professioni della scena”, Teatro Biondo*. Available at: <https://www.teatrobiondo.it/scuola-di-teatro/> (Accessed: 19 April 2025).
- Teatro Regio Parma (2025) *Auditorium Paganini, Teatro Regio Parma*. Available at: <https://www.teatroregioparma.it/auditorium-paganini/> (Accessed: 19 April 2025).
- Theobald, W.F. (2012) ‘Global tourism: Third edition’, *Global Tourism: Third Edition*, pp. 1–561.
- Tovslid, V.K. and Salvesen, M.A. (2023) *Strategic Challenges for Opera Houses and Classical Music Venues*.
- Turismo Comune di Palermo (2025a) *Cantieri Culturali alla Zisa - Officine Ducrot, Turismo Comune di Palermo*. Available at: <https://turismo.comune.palermo.it/palermo-welcome-cantieri-culturali-alla-zisa.php> (Accessed: 19 April 2025).
- Turismo Comune di Palermo (2025b) *Teatro Biondo, Turismo Comune di Palermo*. Available at: <https://turismo.comune.palermo.it/palermo-welcome-cantieri-culturali-alla-zisa-dettaglio.php?tp=197&det=198&id=406> (Accessed: 19 April 2025).
- Urban Opera (2024) *Urban Opera - rassegna di opera lirica diffusa a Milano, Urban Opera*. Available at: <https://urbanopera.it/> (Accessed: 23 April 2025).
- Vitillo, P. (2010) ‘Aree dismesse e rinascita delle città’, *Ecoscienza*, 3, pp. 99–101.
- Xie, P.F. (2015) *Industrial Heritage Tourism, Industrial Heritage Tourism*. Channel View Publications.

Appendix A. Description of categories and attributes for InT sites classification

The following table describes the categories and the corresponding attributes used by Coruzzolo, Roversi and Gamberini (2025) to classify the dataset containing 200 InT sites. These are just some of the categories of the previous paper that studied the InT landscape in Italy in general. For this paper we chose only the following categories because they are useful to have an overview of the artistic touristic field, the focus this paper. Also, a new category (described in the Method part) was created for this paper to deepen artistic touristic field.

Type of plant: state of use of the industrial site [mutually exclusive values]	
Operative Plants (OP)	Operating industry with active production process
Disused Plants (DP)	Abandoned industrial sites repurposed for other uses
Type of activities: type of proposal in the site [mutually exclusive values]	
Tourist Proposals Only (IPO)	Tourism is the only focus of the site
Economic Activities (EA)	Presence of operations that attract customers beyond tourists (services, commercial)
Aims: objective of the touristic proposal.	
Knowledge of the Past (KP)	Conservate and disseminate information at risk of being lost
Recovery and Development (R&D)	Recover abandoned areas and develop adjacent territories
Promotional (P)	Spread a vision of industrial entrepreneurship related with a product
Interventions: structural intervention on the building	
Re-New (RE-NEW)	Renovation including improvements to machinery, facilities, or structures
Building’s Structure Preservation (BSP)	Preservation of only the building’s structure following a radical change of use
Decorative Elements (DE)	Preservation of only some building’s decorative elements
No intervention (NN)	No intervention on machinery, facilities, or structures
Dimensions of sustainability: indicators for sustainable touristic destinations	
Environmental (En)	Improve the effects on the natural environment, i.e., in terms of pollution reduction, energy and natural resources use, better waste management and biodiversity respect.
Economic (Ec)	Augmenting employment opportunities, income to the local communities, increased tourists’ presence, reducing their seasonality trend
Social (S)	Coexistence of residents and tourists, to the respect of residents’ rights and identity, to the accessibility of territorial heritage, to the services offered, along with to assure a low level of criminality
Managerial (M)	Cooperation between public and private entities, crucial for their implementation
Governance (G)	Set, share, and diffuse regulatory and institutional aspects supporting the development of sustainable tourism
Infrastructure (I)	Development of infrastructures (i.e., means and transport services, attractions) that support tourism