

Post-industrial cultural tourism: The Trans-Siberian Railway and the reuse of former industrial sites in Siberia

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Abstract

This study examines the potential of post-industrial cultural tourism in Siberia, with a focus on the Trans-Siberian Railway and the adaptive reuse of former industrial sites. Industrial heritage has become an increasingly important factor in regional identity and sustainable tourism worldwide, yet research on Siberia remains scarce. Using a qualitative mixed-method approach, including case studies, document analysis, and thematic interpretation, the paper highlights opportunities and challenges in transforming railway heritage, mining sites, and related infrastructure into tourism assets. Findings indicate that, while the Trans-Siberian Railway serves as a powerful symbol for cultural branding, industrial reuse faces significant barriers, including infrastructure gaps, investment requirements, and environmental concerns. The study contributes to the global industrial heritage literature by situating Siberia within comparative discussions on cultural tourism, regional development, and community involvement.

Keywords: Industrial heritage tourism, Trans-Siberian Railway, post-industrial landscapes, cultural tourism, regional development

1. Introduction

Over the past three decades, industrial heritage tourism has become a vital component of cultural tourism, drawing the attention of scholars, practitioners, and policymakers alike (Harfst et al., 2025; Wang et al., 2024). Once seen as outdated landscapes of heavy industry, abandoned factories, mining sites, and historic railways are now being reimagined as cultural assets that tell stories of industrial modernity and its social and economic changes (Pozzer, 2024; Szromek, 2025). This shift reflects a broader global trend in post-industrial societies to revive declining industrial regions through heritage preservation, tourism growth, and the creative reuse of built environments (Chiodi et al., 2025; Portela & Aguilar-Cuesta, 2025). Industrial heritage tourism, therefore, lies at the intersection of heritage preservation, sustainable regional development, and the redefinition of cultural identity.

While Europe and North America have provided some of the most extensively studied examples—such as the Ruhr region in Germany, Northern England's mining heritage, and North American railway history—attention is now shifting toward less explored regions (García-Ruiz & Sáez-Pérez, 2024; Zuev et al., 2025). In particular, the Russian Federation, especially Siberia, offers a unique chance to broaden scholarly and practical discussions. Siberia's vast landscape,

layered industrial history, and symbolic significance in Russia's modernization efforts make it an intriguing case for exploring how industrial heritage can be leveraged for cultural tourism. At the heart of this heritage is the Trans-Siberian Railway, an infrastructural and cultural symbol that has influenced Russia's spatial, economic, and cultural perspectives since its construction in the late 19th century (Ren et al., 2025). In addition to the railway itself, Siberia boasts a diverse array of industrial legacies, including mining complexes, metalworking centers, and hydroelectric plants, many of which remain underutilized for tourism (Zaytseva et al., 2024).

In recent years, Russian policy frameworks have increasingly acknowledged industrial and cultural tourism as potential drivers of diversification and regional development. Initiatives such as the "Open Industry" program, the Tourism Development Strategy to 2035, and UNESCO collaborations on heritage preservation indicate a growing institutional interest in incorporating industrial heritage into broader tourism strategies (State Program "Tourism Development", 2025). However, despite these efforts, industrial heritage tourism in Siberia remains marginal, confronting infrastructural, marketing, and governance hurdles (The Post-Industrial Landscapes of Central Urals, 2024). This gap

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stands in contrast to the successful developments seen elsewhere, such as the Guggenheim-led renewal of Bilbao's industrial landscape or the Ruhr's transformation into a cultural-creative hub (Ferrero et al., 2024; Vaishar et al., 2025).

Theoretically, post-industrial tourism emphasizes the tensions among memory, commodification, and sustainability. Scholars have debated whether adaptive reuse and tourist commodification risk damaging the authenticity of industrial sites (Qiu et al., 2025; Zhang et al., 2024), while others contend that such transformations promote new forms of identity and community resilience (Velasco-Muñoz et al., 2025). In Siberia, these tensions are intensified by the region's peripheral location, demographic challenges, and contested cultural narratives. Simultaneously, opportunities exist for linking industrial heritage with intangible aspects—such as local cultural traditions, indigenous identities, and digital heritage innovations (Ji et al., 2024; Yan et al., 2024). Technologies such as virtual reality (VR) and augmented reality (AR) have already demonstrated promise in revitalizing railway tourism experiences elsewhere (Wang et al., 2024; Ji et al., 2024), suggesting ways for Siberia to overcome traditional limitations.

This study, therefore, explores the potential of post-industrial cultural tourism along the Trans-Siberian Railway and related heritage sites in Siberia. Specifically, it aims to: (1) evaluate the symbolic and practical tourism value of the railway as a cultural route; (2) examine the opportunities and challenges of repurposing former industrial and mining landscapes for tourism; and (3) analyze the socio-economic impacts on regional development, community identity, and sustainable tourism. By focusing on Siberia, the paper helps fill a geographical and theoretical gap in industrial heritage tourism research. It advances current discussions on the relationship between industrial heritage, cultural tourism, and regional regeneration, providing insights that are relevant not only to Russia but also to other peripheral industrial regions worldwide.

This research places the Siberian case within broader discussions of industrial heritage tourism and sustainable cultural development. It draws on international comparisons while emphasizing the uniqueness of the Trans-Siberian Railway as both a tangible and symbolic resource. The paper argues that Siberia's industrial heritage, if strategically leveraged, could foster economic diversification and new narratives of identity, resilience, and cultural ties in the global tourism market.

2. Literature review

2.1. Industrial heritage tourism: Global perspectives

Industrial heritage tourism has become a significant component of cultural tourism, transforming once-abandoned industrial sites into places of memory, identity, and economic revitalization (Harfst et al., 2025; Szromek, 2025). Researchers attribute its growth to broader processes of

deindustrialization in Europe and North America, where former industrial areas sought new avenues for social and economic development (Chiodi et al., 2025). Notable examples, such as the Ruhr region in Germany and the Ironbridge Gorge in the UK, demonstrate how industrial ruins have been transformed into UNESCO-listed sites, heritage parks, and cultural centers (Pozzer, 2024; Ferrero et al., 2024). These changes demonstrate the dual role of industrial heritage as both a physical record of industrial modernity and a cultural resource for tourism economies.

Globally, industrial heritage tourism goes beyond Europe. In East Asia, for example, China has promoted industrial heritage routes and urban renewal strategies to blend heritage into city redevelopment projects (Zhang et al., 2024; Xia et al., 2025). In Latin America, post-industrial landscapes, such as mining areas, have been studied for their tourism opportunities and cultural significance (Bahamonde-Rodríguez et al., 2024). These comparative experiences underscore the global importance of industrial heritage tourism, while also highlighting diverse governance approaches, visitor motivations, and cultural interpretations.

2.2. Adaptive reuse and post-industrial landscapes

Adaptive reuse remains a key element in both the theory and practice of industrial heritage tourism. The conversion of abandoned factories, railways, and mines into museums, cultural venues, and leisure spaces has been extensively documented (Portela & Aguilar-Cuesta, 2025; Han & Zhang, 2025). Scholars argue that adaptive reuse facilitates the preservation of industrial structures while integrating them into modern cultural and tourism sectors (Chen, 2025). For example, the Guggenheim Museum in Bilbao is a notable case where culture-led regeneration transformed a declining port-industrial city into a global cultural hub (Vaishar et al., 2025).

Yet, adaptive reuse faces particular challenges. Concerns have been raised about the commodification of heritage and the potential loss of authentic meanings (Zhang et al., 2024; Qiu et al., 2025). Some scholars emphasize the importance of balancing patrimonialization with community memory to ensure that regeneration projects remain socially inclusive (Chiodi et al., 2025). Failures, such as the Ave Basin Industrial Heritage Route in Portugal, demonstrate how poor planning, inadequate funding, and limited community involvement can hinder sustainability (Pozzer, 2024). These debates emphasize that adaptive reuse is both an opportunity and a contested approach in heritage tourism development.

2.3. Industrial heritage, regional development, and sustainability

One of the most significant arguments in favor of industrial heritage tourism is its contribution to sustainable regional development. By attracting visitors, creating jobs, and diversifying local economies, heritage tourism can help revitalize areas affected by deindustrialization (Velasco-Muñoz et al.,

2025). Policies in Central and Eastern Europe increasingly view industrial heritage tourism as a tool for regional development (Harfst et al., 2025). Similar approaches are observed in Southern Europe, where industrial heritage is linked to cultural-creative industries and rural revitalization (Bahamonde-Rodríguez et al., 2024).

Sustainability debates go beyond economics. Ecological issues are increasingly highlighted, especially as heritage sites must comply with “green standards” in tourism (Szromek, 2025). Industrial tourism efforts are expected to incorporate environmental considerations, ranging from energy-efficient adaptive reuse to visitor management (Fan et al., 2024). These issues align with global tourism goals, emphasizing the integration of cultural heritage preservation with climate adaptation and sustainability efforts.

2.4. Visitor experience, authenticity, and community engagement

Tourist perceptions and experiences are crucial for the success of industrial heritage tourism. Research shows that authenticity—both perceived and staged—affects visitor satisfaction, attachment, and loyalty (Qiu et al., 2025; Qiu et al., 2024). However, industrial heritage sites often evoke mixed feelings, including nostalgia, pride, and sometimes discomfort or sadness (Zhang et al., 2024). Dark tourism aspects, especially in sites related to forced labor, mining accidents, or Gulag histories, add further complexity to the visitor experience (Zuev et al., 2025).

Community engagement is another key factor in sustainability. Scholars emphasize that heritage tourism must include local perspectives (Yaşar & Yayla, 2023), especially in areas where industrial decline has led to socio-economic marginalization (Velasco-Muñoz et al., 2025). Participatory governance, co-creation, and citizen involvement in heritage interpretation can improve both authenticity and social legitimacy (Ferrero et al., 2024). Community stories not only enhance the visitor experience but also build resilience and collective identity in post-industrial regions.

2.5. Technological innovations in industrial heritage tourism

Digital technologies, including augmented reality (AR), virtual reality (VR), and immersive digital storytelling, are

increasingly transforming industrial heritage tourism (Ji et al., 2024; Wang et al., 2024). Virtual reconstructions enable visitors to experience industrial processes and landscapes that are otherwise inaccessible or degraded, thereby improving interpretation and engagement. For example, VR applications have been utilized in railway heritage sites in China and Europe, offering immersive historical experiences (Wang et al., 2024).

Additionally, digital tools support sustainable visitor management by easing physical pressure on fragile sites (Petrova et al., 2025). Scholars argue that such innovations align with broader digital shifts in tourism, enabling new approaches to heritage commodification while preserving the material integrity of heritage sites (Yao et al., 2025). However, critics warn that digital mediation may separate visitors from the tangible authenticity of industrial sites, raising concerns about striking a balance between technological improvements and embodied experience (Sousa & Rodrigues, 2024).

2.6. Industrial heritage tourism in Russia and Siberia: Current state and gaps

Compared to Western Europe and East Asia, industrial heritage tourism in Russia remains underdeveloped (Zaytseva et al., 2024). The dissolution of Rostourism and the transfer of responsibilities to the Ministry of Economic Development have created institutional uncertainties (TASS, 2023). Still, initiatives like the “Open Industry” program have made factories and industrial sites accessible to visitors, marking an early step toward incorporating industrial heritage into tourism strategies (Izvestia, 2025).

Siberia presents a remarkably underexplored context. Despite the symbolic importance of the Trans-Siberian Railway and the presence of mining, metallurgy, and hydroelectric heritage, most sites remain poorly integrated into tourism frameworks (The Post-Industrial Landscapes of Central Urals, 2024). Challenges include insufficient infrastructure, limited marketing, environmental concerns, and Siberia’s vast geographical scale (Zuev et al., 2025). Additionally, few studies explore the potential connections between industrial heritage and Siberia’s indigenous cultural landscapes, which could enhance tourism stories and diversify offerings.

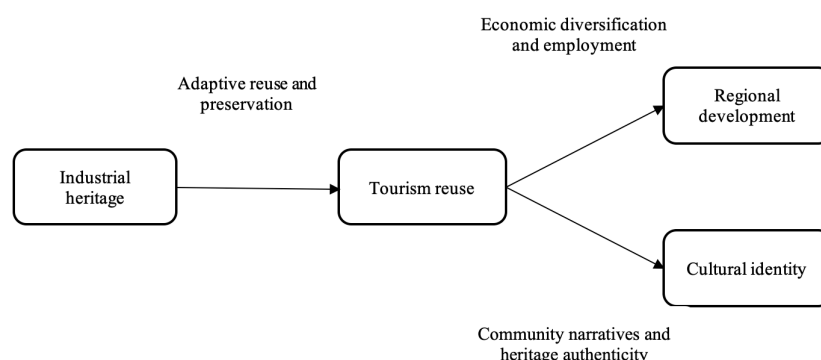


Figure 1. Conceptual framework: Industrial heritage, tourism reuse, regional development and cultural identity

Research Questions:

1. What is the cultural tourism potential of the Trans-Siberian Railway?
2. What opportunities and challenges are involved in repurposing former mining sites for tourism?
3. How can post-industrial cultural tourism benefit local communities economically and socially in Siberia?

3. Methodology

This study does not involve human participants, the collection of personal data, or experiments on living beings. The research is based solely on secondary data, site analysis, and literature review. Therefore, it does not require approval from an institutional ethics committee. It adhered to the guidelines outlined in the Declaration of Helsinki for research involving human subjects.

3.1. Data collection methods

This research employed a mixed-methods approach, with a focus on qualitative data, to understand the complex relationship between industrial heritage, cultural tourism, and regional development in Siberia (Creswell & Plano Clark, 2017). Two main data collection methods were used:

a) *Case Studies*: Case studies were conducted along the Trans-Siberian Railway, focusing on selected stations and museum sites that showcase the reuse of industrial heritage. These included the Museum for Railway Technology in Novosibirsk, the Sverdlovsk Railway Museum in Yekaterinburg, and the historic Slyudyanka station near Lake Baikal. These sites were selected for their architectural, symbolic, and functional significance in the transition from industrial use to heritage tourism (Boente et al., 2024; Harfst et al., 2025). The case studies helped explore how railway infrastructure and former industrial facilities are being revalued for cultural tourism, revealing both opportunities and challenges (Pozzer, 2024; Zuev et al., 2025).

b) *Documentary Analysis*: Document sources were carefully reviewed to situate empirical findings within the broader contexts of tourism and heritage management policies. Key materials included Russian federal and regional tourism policy documents (e.g., the Tourism Development Strategy of the Russian Federation until 2035), UNESCO reports on heritage management and sustainability, as well as international studies comparing industrial heritage tourism (Rhodes & Hannum, 2024; Wang et al., 2024). Documents were selected based on Bowen's (2009) criteria for relevance, authenticity, and credibility. This approach enabled cross-checking of policy frameworks against actual practices in heritage reuse and tourism growth.

3.2. Data analysis

The data were analyzed through content analysis and thematic analysis, following best practices in qualitative

heritage tourism research (Braun & Clarke, 2006; García-Ruiz & Sáez-Pérez, 2024). Content analysis was first applied to policy documents, museum reports, and archives to identify common themes related to the valorization of industrial heritage, sustainability, and the integration of tourism. Coding was guided both by the research questions and the data itself (Krippendorff, 2019).

Next, a thematic analysis was conducted on the case study data, which included field notes and descriptions of heritage sites. Themes such as “adaptive reuse,” “regional branding,” “infrastructural challenges,” and “community benefits” emerged, reflecting broader conversations in industrial heritage tourism (Szromek, 2025; Chiodi et al., 2025). The process of coding and developing themes was repeated and refined to enhance rigor and ensure that the findings aligned with the study's framework. Bringing together these analysis methods provided a deep understanding of how material heritage, tourism policies, and regional growth interact along the Trans-Siberian Railway.

4. Findings

The analysis reveals that the Trans-Siberian Railway corridor is a significant yet underutilized resource for developing industrial heritage tourism in Russia (Table 1). Besides its fame as an iconic transcontinental journey, the route features numerous engineering monuments, historic stations, and industrial landscapes that could be utilized as themed tourism attractions. The mix of tangible heritage—such as railway architecture, bridges, depots, factories, and mines—and intangible elements, including workers' histories and community stories, provides a solid foundation for creating diverse visitor experiences. Building such initiatives around existing heritage sites and museums would be a cost-effective starting point, with the potential to expand through the adaptive reuse of larger complexes, thereby establishing the corridor as a leading destination for industrial heritage.

Several existing projects highlight the potential of “museumified” stations and railway heritage sites (Table 3). The Museum of Railway Technology in Novosibirsk, with its extensive open-air collection of locomotives, is already a popular attraction that showcases a range of technical and industrial displays. The Circum-Baikal Railway and Slyudyanka Station are unique heritage assets blending exceptional engineering with stunning natural scenery, offering opportunities for heritage train trips and international branding. Other examples include the Russian Railway Museum in St. Petersburg, the industrial and military museum complex at Verkhnyaya Pyshma near Yekaterinburg, and reuse projects like the PERMM Museum and the Perm-36 memorial site. These sites show the range of interpretive options, from technical history to challenging heritage, that could be connected through themed routes. Developing these networks would benefit from improved multilingual interpretation, consistent messaging across regions, and the use of digital technologies to enhance accessibility and storytelling.

Table 1. Industrial heritage and tourism potential along the Trans-Siberian Railway

Region / City	Type of heritage	Current use	Tourism potential
Yaroslavl-Glavny	Historic railway station (late 19th–early 20th century architecture)	Active railway station	Cultural heritage tours, architectural heritage promotion
Perm	Industrial heritage (factories, mining sites), PERMM Contemporary Art Museum, Perm-36 Gulag site	PERMM operates in a repurposed industrial building; Gulag site as memorial museum	Expansion of industrial heritage tourism, dark tourism, cultural-creative industries
Yekaterinburg & Verkhnyaya Pyshma	Mining and metallurgy heritage, UMMC Museum Complex	Museum of military, automotive, and industrial technology	Strong candidate for industrial tourism corridors, educational tourism
Novosibirsk	Museum for Railway Technology; Soviet-era industrial facilities	Railway museum with locomotives and wagons	Development of industrial tourism clusters (rail + energy/chemical industry sites)
Krasnoyarsk	Historic railway bridges and stations; hydroelectric power plants	Active energy facilities; limited cultural use	Potential for industrial heritage interpretation, energy tourism
Irkutsk & Circum-Baikal Railway	Historic railway line (bridges, tunnels, engineering works)	Heritage railway with tourist excursions	UNESCO nomination candidate; flagship industrial heritage attraction
Ulan-Ude	Railway heritage + Buryat cultural heritage	Functional railway station, ethnographic museums	Combination of cultural and industrial heritage tourism
Chita-2 Station	Railway station (listed cultural heritage)	Active station	Railway heritage tourism, cultural events
Amur Region	Abandoned mining and forestry facilities	Mostly unused / derelict	Adaptive reuse for industrial tourism and cultural festivals
Vladivostok	Railway terminal (1893), port facilities, shipyards, Soviet-era military-industrial sites	Active port and transport hub; some museums	Maritime & industrial heritage tourism; reuse of shipyards and Soviet sites

Table 2. Policies/reports/legislation and resources in Russia

Source/political initiative	Content & relevance: From an industrial heritage and tourism perspective
<i>Russian Experience of Conservation and Renovation of Industrial Regions' Heritage</i>	Case studies on preserving and renewing the heritage of industrial zones in Russia. How old industrial structures can be restored and repurposed for various uses, such as cultural tourism.
<i>State Program "Tourism Development", 2025</i>	Starting in 2025, support will be provided to regions in Russia to improve public spaces and develop coastal infrastructure. It is planned to support tourism through infrastructure, which could be an opportunity to enhance the physical conditions of former industrial zones.
<i>Industrial tourism in Russia" including "Open Industry</i>	The "Open Industry" ("Открытая Индустрия") program is opening industrial facilities to tourists; many regions and businesses have joined this effort. A notable increase in industrial tourism visitors is observed.
<i>Structural Changes in Federal Agencies</i>	Rostourism (the Russian Federation Tourism Agency) was abolished, with regulatory duties related to tourism transferred to the Ministry of Economic Development. How these changes impact policies on industrial heritage and tourism integration is an important area for research.
<i>Russia-UNESCO cooperation & Cultural/Indigenous Languages Policies</i>	Russia is reportedly working with UNESCO on projects related to cultural heritage and indigenous peoples; these collaborations could create a framework for developing cultural tourism. For example, projects on indigenous languages and cultural heritage.
<i>Case Focus/Regional Plans</i>	Some cities and regions are creating special initiatives to incorporate industrial heritage into tourism, such as organizing visits to industrial sites (free tours) and programs like "Plant Seen."

Table 3. Museumified stations/examples of railway heritage






Museumified stations	Description/relevance
	<p>Museum for Railway Technology (Novosibirsk, near Seyatel Station)</p> <p>An open-air railway museum featuring steam, diesel, and electric locomotives, railcars, and railway maintenance equipment.</p>
	<p>Museum of Sverdlovsk Railway (Yekaterinburg, old Yekaterinburg Station + Yekaterinburg-Sortirovochny Station)</p> <p>A railway museum highlighting both the historic station building and exhibition areas.</p>
	<p>Russian Railway Museum (Saint Petersburg, next to Baltiysky Railway Station / old depots, Shushary site)</p> <p>The venue features extensive exhibition spaces, locomotive and wagon collections, interactive exhibits, and outdoor displays</p>
	<p>Ethnographic Museum of the Peoples of Transbaikalia (Ulan-Ude)</p> <p>Although not a railway station, this cultural heritage museum along the Trans-Siberian route showcases the culture of local peoples.</p>
	<p>Slyudyanka Station</p> <p>This station is an interesting architectural example; it attracts attention with its lakeside setting, use of marble, and historic station building.</p>

Table 4. Russian tourism policies and official/academic reports

Source	Description / Relevance
<p><i>"Tourism Development Strategy in the Russian Federation for the period up to 2035"</i></p>	<p>The official strategy document describes Russia's plan to develop tourism by 2035, covering infrastructure, regional tourism, and diversifying tourist offerings.</p>
<p><i>"The government approved the action plan for the development of tourism in Russia until 2035"</i></p>	<p>This action plan, adopted in 2019, includes specific measures such as creating tourism clusters, supporting rural and eco-tourism projects, and upgrading accommodation infrastructure.</p>
<p><i>"A National standard for sustainable tourism will be developed in Russia"</i></p>	<p>The "Green Standards" plan aims to establish standards for sustainable tourism facilities, considering environmental, social, and economic factors.</p>
<p><i>"Industrial tourism in Russia"</i> (Strategy Partners)</p>	<p>Current data on the growth of industrial facilities opened as tourist destinations is available, including information on which regions have adopted this approach.</p>
<p><i>"Russian Experience of Conservation and Renovation of Industrial Regions' Heritage"</i></p>	<p>An academic article discusses experiences in preserving and revitalizing the heritage of industrial zones in Russia, emphasizing best practices and challenges.</p>
<p><i>"The Post-Industrial Landscapes of Central Urals, Russia: Heritage Value, Tourist Potential, and Unrealized Opportunities"</i></p>	<p>A case study on tourism potential related to mining and industrial heritage in the Central Ural Region highlights issues like inadequate infrastructure, promotion, and collaboration with local government.</p>
<p><i>"Fundamental Principles of the Strategy of Tourism Development in Russia"</i></p>	<p>This article outlines core principles, including boosting tourism competitiveness domestically and internationally, preserving cultural heritage, and enhancing service accessibility.</p>

Policy analysis indicates that Russia's broader regulatory environment is becoming increasingly supportive of industrial tourism, although some gaps remain (Table 2). National strategies, such as the Tourism Development Strategy to 2035, emphasize diversifying tourist products, forming regional clusters, and improving infrastructure as key objectives. Programs such as "Open Industry" demonstrate how operational frameworks can be established for guided visits to active or closed facilities. However, the lack of unified guidelines for conserving and presenting industrial heritage, along with fragmented governance at federal, regional, and municipal levels, hinders the sector's systematic growth. Funding limitations and the absence of specific financial tools for adaptive reuse worsen these issues. Addressing environmental cleanup, visitor safety, and institutional coordination is essential for sustainable growth in this area.

Policy documents and academic literature are valuable resources for international stakeholders interested in the Trans-Siberian region (Table 4). Official strategies and action plans are increasingly available in bilingual formats, helping foreign researchers and practitioners align their proposals with Russian policy priorities. Academic works in English on industrial heritage, route development, and digital enhancement complement these official sources with methodological insights and comparative case studies. Still, many regional reports and practitioner documents are only available in Russian, highlighting the need for partnerships with local institutions and translation support.

Overall, the findings suggest that the Trans-Siberian Railway corridor has strong potential to become a flagship industrial heritage route, if policy frameworks, interpretive practices, and community involvement are effectively integrated. Focus should be on pilot projects around key sites, coordinated marketing across regions, and utilizing digital tools to overcome infrastructure and accessibility challenges. If pursued systematically, these efforts could diversify Russia's tourism offerings, promote regional development, preserve industrial memory, and foster cross-cultural understanding along one of the world's most important transport corridors.

5. Discussion and conclusion

This study examined the potential of post-industrial cultural tourism along the Trans-Siberian Railway and in Siberia's deindustrialized mining regions. The findings highlight three key contributions: (1) the importance of railway heritage as a cultural-symbolic anchor, (2) the challenges and opportunities of repurposing mining landscapes, and (3) the socio-economic benefits associated with industrial heritage tourism. Together, these results position Siberia as an emerging testing ground for understanding the relationship between industrial heritage, regional growth, and cultural identity.

First, the enduring significance of the Trans-Siberian Railway demonstrates that railway heritage serves not only

as a transportation legacy but also as a cultural narrative central to national identity. This finding aligns with research in Western Europe and Asia, where industrial corridors and historic railways have become iconic tourism attractions (Boente et al., 2024; Ren et al., 2025). Unlike the relatively well-known Ruhr Valley or Ave Basin routes, however, Siberia's railway heritage remains underused in global tourism markets. This difference suggests that heritage promotion relies heavily on coordinated policy and marketing efforts (Harfst et al., 2025; Pozzer, 2024).

Second, repurposing mining landscapes reveals both limitations and opportunities. Infrastructure issues, environmental harm, and low investment reflect challenges similar to those seen in other industrial regions, such as Southern Europe and Central Asia (Bahamonde-Rodríguez et al., 2024; Merylova, 2024). However, combining industrial remnants with cultural and creative industries, as in Perm and Yekaterinburg, aligns with sustainable reuse strategies promoted in Central and Eastern Europe (Chiodi et al., 2025). Unexpectedly, community views in Siberia placed more importance on cultural pride and regional identity than on economic benefits, a finding that contrasts with those from China, where industrial tourism is often focused on market competitiveness and urban renewal (Han & Zhang, 2025; Xia et al., 2025). This indicates that the symbolic and emotional values of heritage are fundamental in post-socialist contexts.

Third, the study emphasizes the transformative potential of industrial heritage tourism for regional development and identity rebuilding. In line with earlier research (Portela & Aguilar-Cuesta, 2025; Velasco-Muñoz et al., 2025), industrial sites in Siberia serve as platforms where heritage preservation, economic revitalization, and cultural recognition converge. However, unlike many global examples, Siberia's vast geography and logistical challenges prevent clustering and the development of integrated routes. This highlights the need for innovative solutions, such as digital technologies and immersive experiences, which recent studies have shown to be effective in improving heritage access (Ji et al., 2024; Xu et al., 2025).

This study adds to the literature by placing industrial heritage tourism within Siberia's unique social and spatial context. While the results align with global trends that emphasize sustainability, community involvement, and adaptive reuse, they also highlight the need for strategies tailored to the geographic scale, political economy, and cultural context. Industrial heritage in Siberia is not only an economic opportunity but also a tool for cultural diplomacy and identity building. Policymakers, planners, and heritage managers should combine infrastructure, cultural, and technological approaches to unlock this potential. Future efforts should aim to strike a balance between preservation and economic development, encourage local community participation, and utilize digital tools for international outreach. By doing so, Siberia could become a distinctive destination for industrial

heritage, contributing to both academic discussions and real-world models of sustainable tourism.

5.1. Theoretical implications

This study deepens the theoretical understanding of post-industrial tourism in several ways. First, it broadens the industrial heritage dialogue beyond Western European and East Asian settings, which dominate the existing literature (García-Ruiz & Sáez-Pérez, 2024; Wang et al., 2024). By focusing on Siberia, the research shows how industrial heritage plays a role in post-socialist economies and large peripheral regions, thereby filling a key geographical and conceptual gap.

Second, the findings deepen the understanding of the heritage-tourism-development connection by highlighting the dual role of industrial heritage as both an economic resource and a cultural-symbolic marker. Previous studies often focus on economic revival or environmental sustainability (Szromek, 2025; Fang et al., 2024). In contrast, this study demonstrates that local stakeholders also see industrial heritage as a means for identity revival and cultural resilience. This aligns with recent ideas that heritage landscapes are places of social meaning-making rather than just tourist commodities (Chiodi et al., 2025; Fu, 2025).

Third, the analysis advances debates on adaptive reuse by placing Siberia's mining and railway heritage within broader theoretical frameworks of sustainability and creative regeneration. While models of adaptive reuse often focus on dense urban areas (Chen, 2025; Zhang & Ren, 2025), this study shows that dispersed, large-scale infrastructures present unique challenges to implementation. Theoretical implications include the need to expand adaptive reuse frameworks to rural and remote settings, addressing issues of accessibility, governance, and cross-scale policy integration.

Ultimately, this research reinforces and expands the concept of "cultural routes" as dynamic systems for appreciating heritage. Unlike earlier studies that view industrial routes as limited and easily marketable (Boente et al., 2024; Pozzer, 2024), the Trans-Siberian Railway demonstrates how heritage corridors function on a continental scale, prompting a reevaluation of current theoretical frameworks. By incorporating insights from sustainable tourism, cultural geography, and post-industrial studies, this study presents a more comprehensive framework that sees industrial heritage as both a tangible resource and a storytelling medium that shapes regional identity.

5.2. Practical implications

For policymakers and tourism planners, the study emphasizes the importance of positioning the Trans-Siberian Railway and Siberia's industrial landscapes as integrated heritage corridors. This requires multi-level governance and international collaboration, mirroring global best practices in heritage tourism policy (Harfst et al., 2025). Investments

should focus on accessibility, interpretation infrastructure, and visitor facilities, as these are essential for even flagship heritage sites to attract sustained visitation (Fan & Sun, 2024).

For destination managers, the findings suggest that branding strategies should go beyond functional transport or industrial narratives to emphasize cultural identity and authenticity. As Sousa and Rodrigues (2024) argue, trust and perceived authenticity have a significant influence on the visitor experience in heritage settings. Clear communication about conservation efforts, community involvement, and sustainability initiatives will be essential for fostering long-term destination loyalty.

For local communities and cultural institutions, the adaptive reuse of industrial heritage offers opportunities for economic diversification and the development of creative industries. Case studies from Perm and Yekaterinburg demonstrate how former factories and mines can be transformed into venues for art museums, cultural festivals, and educational programs. Drawing on research in Italy and Spain (Chiodi et al., 2025; Portela & Aguilar-Cuesta, 2025), the integration of cultural events with the reuse of industrial heritage can create both economic and symbolic value, fostering pride and identity.

Ultimately, for tourism marketers and digital innovators, Siberia's vast geography requires new tools for accessibility and understanding. Virtual reality, augmented reality, and digital storytelling, as examined in recent studies from China and Europe (Ji et al., 2024; Xu et al., 2025), could enable global audiences to experience Siberian heritage remotely while also encouraging physical visits. Collaborations among technology companies, cultural institutions, and tourism agencies could thus turn Siberia into a benchmark for digitally enhanced industrial heritage tourism.

5.3. Limitations and future research directions

This study has several limitations that open opportunities for future research. First, its scope is geographically limited to specific railway and mining sites in Siberia. While these cases offer valuable insights, they cannot represent the full diversity of industrial heritage across Russia. Comparative studies in other post-socialist or resource-rich regions (e.g., Central Asia, Eastern Europe) would help validate findings more broadly.

Second, the research mainly relies on qualitative case analysis and secondary data. Although suitable for exploratory purposes, future research could use quantitative surveys or econometric models to assess visitor motivations, economic impacts, and long-term sustainability results (Qiu et al., 2024). Long-term studies would also help monitor changing perceptions of industrial heritage as tourism efforts develop.

Third, while this study recognizes digital tools as promising solutions, it does not empirically assess their

effectiveness. Future research should explore how VR, AR, and digital twin technologies impact visitor engagement and heritage conservation outcomes, as suggested by recent work (Petrova et al., 2025; Wang et al., 2024).

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Author contribution

The author conducted the research design and implementation, analysis, and article writing without using AI applications.

Disclosure statement

The author reported no potential conflicts of interest.

Ethics committee approval

This study does not involve human participants, the collection of personal data, or experiments on living beings. The research is based solely on secondary data, site analysis, and literature review. Therefore, it does not require approval from an institutional ethics committee. It adhered to the guidelines outlined in the Declaration of Helsinki for research involving human subjects.