

From Heritage to Asset: Pathways for IP Construction of Qilu Transport Cultural Symbols

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Abstract: Shandong preserves a rich transport heritage, ranging from German-colonial railway stations on the Qingdao–Jinan line to ancient canal locks, century-old locomotives, and road-building folk customs. Despite its diversity and cultural depth, this heritage has long been managed through conventional conservation approaches—physical restoration and archival documentation—with limited engagement with public audiences or market mechanisms. Within the framework of transport–tourism integration, this study proposes a three-stage research model—symbol mining, design translation, and IP construction—to examine how Qilu transport cultural symbols can be transformed from historical remains into cultural assets. Drawing on fieldwork at the Qingdao–Jinan Railway Museum and the historic Jinan Railway Station, the study identifies a tripartite transformation: from physical objects to visual imagery, and then to spatial experience. Specifically, we construct a three-category symbolic system encompassing material, event-based, and spiritual symbols; translate these symbols through the dimensions of form, colour, pattern, and structure; and develop an extensible cultural-asset system. We argue that transport spaces are evolving from mere transit nodes into cultural-experience settings, and that the IP-based activation of transport symbols offers a viable pathway for the creative transformation of cultural heritage. The findings provide both design strategies and methodological references for transport–tourism integration in Shandong.

Keywords: transport cultural symbols; intellectual property (IP) construction; Qilu culture; culture–tourism integration; Qingdao–Jinan Railway

1. Introduction

In February 2026, the ‘Good Shandong·Qilu No.1’ cultural-heritage educational tourist train

commenced operation. Its ten-carriage consist, featuring seven theme carriages that embed museum-quality artefacts into the travel environment, has carried more than 40,000

passengers (Wang, C., Zhi, J. Y., Qin, Y. & Liang, Z., 2021). Around the same time, the 'braised pork' and 'fried pancake' shaped transit cards launched by Jinan Public Transport became viral social-media sensations, now interoperable across more than 300 cities nationwide (Guo, K. Y., 2025). These examples indicate a broader shift: transport carriers are no longer merely instruments of mobility but are emerging as cultural-experience settings, and transport infrastructure is becoming a new growth area for cultural tourism (Feng, L., 2020; China Daily, 2026a).

Yet a closer examination reveals that most current transport-tourism initiatives concentrate on the creative adaptation of contemporary vehicles—tourist trains emphasise decorative carriage interiors, while transit-card designs focus on playful visual gimmicks. By contrast, the deeper historical layers of transport heritage have yet to receive systematic symbol mining or IP translation. The Qingdao-Jinan Railway Museum houses 759 artefacts and 1,314 photographs; the German-style gables and clock tower of the historic Jinan Railway Station stand as architectural landmarks (China Daily, 2026b); and the Yellow River Bridge represents a feat of modern engineering. Much of this heritage remains largely unknown to the wider public.

This study addresses the following questions: How can dormant transport heritage be revitalised? How can abstract transport-cultural symbols be transformed into perceptible, communicable, and consumable cultural assets? Adopting a transport-tourism integration perspective, we examine Qilu transport cultural symbols and explore pathways from heritage to asset through IP construction.

In this study, IP construction refers to the continued use of a coherent set of cultural symbols across products, spaces, and communication activities, rather than the design of a single cultural-creative product. The Qingdao-Jinan Railway Museum and the historic Jinan Railway Station were selected because they preserve representative buildings, artefacts, images, and historical narratives. The study draws on field observations, exhibition

materials, project documents, and related reports. The collected symbols were classified as material, event-based, or spiritual according to their physical form, historical content, and value meaning.

2. Symbol Inventory: The Resource Base of Qilu Transport Cultural Symbols

IP construction must begin by identifying which symbols merit extraction and translation. This requires moving beyond the narrow view of 'transport as vehicle' and situating transport within the broader frameworks of civilisational evolution, spatial production, and cultural identity (The First Ancient Road Culture Academic Seminar Organizing Committee, 2025).

2.1 A Three-Tier Symbolic System

Qilu transport cultural heritage comprises at least three layers (Luwang News, 2026).

Material symbols refer to visible, tangible transport remains. Ancient examples include chariot-and-horse remains, plank roads, canal locks, and posting-station ruins (The First Ancient Road Culture Academic Seminar Organizing Committee, 2025). The modern era is dominated by the Qingdao-Jinan Railway, which opened in 1904 as Shandong's first railway line (China Network, 2025). The historic Jinan Railway Station, completed in 1915, exhibits a distinct German architectural vocabulary of gables, arched windows, and a clock tower (China Daily, 2026b). Contemporary additions include the Yellow River Bridge and cross-sea bridges.

Event symbols encode historical events and socio-economic transformations associated with transport changes. The completion of the Qingdao-Jinan Railway triggered Jinan's voluntary port opening and reoriented Shandong's economic centre of gravity from a north-south canal-based axis to an east-west rail-based one (China Network, 2025). In 1953, Qingdao workers transported a 300-tonne granite monolith for the Monument to the People's Heroes in Beijing—a feat later distilled into the 'Red Rock Spirit'. These events transcend transport

history and have become integral to regional cultural identity.

Spiritual symbols embody value systems embedded in transport heritage. The Qingdao Navigation Beacon Museum promotes the ethos of ‘burning oneself to illuminate the world’ (China Transport News, 2025). The Chinese railway emblem, combining the character for ‘people’ with a rail cross-section, encapsulates the ‘railway for the people’ principle. Although intangible, these spiritual symbols possess strong affective appeal in IP narratives.

2.2 Morphological Characteristics

Morphologically, the historic Jinan Railway Station features an asymmetrical composition—the clock tower stands in deliberate imbalance with the main hall—yielding a highly recognisable silhouette (China Daily, 2026b). The Qingdao–Jinan Railway Museum contains a spiral stone staircase ‘constructed from interlocking stone slabs without any supporting structure, exemplifying the ingenious use of mechanical principles’ (People’s Railway, 2022). In terms of colour, rust-red, grey brick, and copper-green form the signature palette of historical transport remains. Pattern-wise, the parallel lines of rails, circular spokes of wheels, and geometric trusses of bridges offer rich decorative vocabulary for modern design (Feng, L., 2020).

3. Translation Pathways: From Symbol to IP via Design Mediation

The existence of symbols does not equate to their activation. Transformation from cultural heritage to cultural IP requires a critical methodological shift: converting symbols from ‘research objects’ into ‘design materials’, and subsequently into ‘consumable cultural assets’ (Wang, C., Zhi, J. Y., Qin, Y. & Liang, Z., 2021).

3.1 Extraction and Translation: Four Dimensions of Design Mediation

We propose a four-dimensional extraction framework: form, colour, pattern, and structure

(Feng, L., 2020; China Daily, 2026b). Form extraction focuses on characteristic features such as gable curves, arched-window contours, and tower profiles. Colour analysis identifies the tonal systems of historical objects and built environments. Pattern design draws decorative motifs from rails, wheels, and bridge trusses. Structural extraction examines the organisational logic and architectural grammar of transport spaces (Research group on Japanese railway architecture, 2024).

Design practice at the Qingdao–Jinan Railway Museum illustrates the feasibility of this approach. The Impression of Qingdao–Jinan illustrated cultural-creative design, developed by postgraduate students at Shandong University of Art & Design, employed flat illustration techniques to distill locomotive, clock-face, and museum motifs, ‘injecting modern vitality into the traditional railway museum’ (Feng, L., 2020). The museum’s ‘Century-old Qingdao–Jinan’ postcard series selected 12 representative stations from a total of 60 along the line, rendered in pen-and-ink to accentuate the crisp lines of historic buildings (Jiju Cultural Creativity, 2025).

3.2 IP-Oriented Design Language

While ‘extraction’ addresses what to select, ‘translation’ addresses how to apply. We advocate an IP-oriented design language: flat illustration lowers cognitive barriers, geometric abstraction enhances symbolic recognisability, dynamic formats expand media adaptability, and personification builds emotional engagement (Wang, C., Zhi, J. Y., Qin, Y. & Liang, Z., 2021; China Daily, 2026a).

A pertinent example comes from canal-culture IP practice. A Qingdao University team extracted key canal-site nodes and transformed them into the ‘Grain Rrans full’ emoji series, which ‘through personification design, injects vivid imagery into otherwise abstract and static historical data, lowering the threshold for public understanding’ (China Daily, 2026a). The same logic applies to transport symbols—the ‘August 1st’ steam locomotive of the Qingdao–Jinan Railway, the bridge towers of the Yellow River Bridge, and canal

lock gates can all be personified into approachable IP characters.

3.3 Methodological Contribution: From Discrete Extraction to Systematic Construction

Existing transport-culture design practices typically stop at ‘symbol extraction plus visual presentation’, without completing the full chain of ‘mining–translation–construction’ (Feng, L., 2020; China Daily, 2026b; Wang, C., Zhi, J. Y., Qin, Y. & Liang, Z., 2021). The three-stage framework proposed here contributes methodologically by upgrading symbol extraction from incidental ‘inspiration gathering’ to systematic ‘resource auditing’, elevating design translation from mere ‘visual embellishment’ to multi-dimensional ‘cultural trans-coding’, and reorienting IP construction from fragmented ‘product development’ to extensible ‘asset system’ (Guo, K. Y., 2025).

4. Scene Reconstruction: Spatial Narratives of Transport-Cultural IP

After symbol translation, how does IP become materially realised? We argue that the vitality of transport-cultural IP lies not in display cases but in lived scenes. The activation of transport spaces is central to transport–tourism integration (Research group on urban cultural IP and bridge design, 2025). The museum and station cases concern the transformation of transport heritage itself, whereas the “Qilu No.1” train and transit-card cases are included mainly to show how transport carriers can provide settings for the communication of regional culture.

4.1 Three Pathways for Spatial Activation

Museum experience upgrade. The Qingdao–Jinan Railway Museum has launched an immersive theatre production, Lao She’s Qingdao–Jinan Twin-City Tale, which ‘through live performance, scene recreation, and multimedia interaction, transports audiences back a century’ (People’s Railway, 2022). This indicates a transition from artefact display to immersive experience.

On-board cultural embedding. The ‘Qilu No.1’ educational train incorporates seven theme carriages featuring bronze, jade, porcelain, pottery, pictorial stones, architecture, and costume elements, complemented by two entertainment carriages equipped with AI-supported interactive games (Wang, C., Zhi, J. Y., Qin, Y. & Liang, Z., 2021). The concept of a ‘moving museum’ upgrades the carriage from transit unit to cultural scene.

Everyday use through creative products. The ‘gilded dragon-horse bronze danglu’ transit card—inspired by a Western Han artefact excavated from Zhangqiu Luozhuang Han tomb—transforms an ‘ancient royal chariot emblem’ into a transit card usable in over 300 cities nationwide, ‘bringing high-brow artefacts down from their pedestals and turning them into portable cultural symbols carried in daily life’ (Luwang News, 2026). This case reveals the underlying logic of ‘transport cultural creativity’: the transit card functions simultaneously as payment instrument and city-cultural carrier; tapping the card is at once a commuting act and a cultural-consumption moment (Guo, K. Y., 2025).

4.2 From ‘Transport Vehicle’ to ‘Cultural Medium’

A common thread across these cases is that transport carriers are becoming not just ‘people movers’ but ‘culture movers’ (Research group on urban cultural IP and bridge design, 2025; China Network, 2025). When a passenger taps a gilded dragon-horse card, ‘it feels as if a silent dialogue between ancient and modern transport civilisations has taken place’ (Luwang News, 2026); when children on the ‘Qilu No.1’ train engage with the ‘ancient–modern artefact match’ game, ‘they grasp the evolutionary trajectory of artefacts through relaxed interaction’ (Wang, C., Zhi, J. Y., Qin, Y. & Liang, Z., 2021). Transport space thus becomes a site of cultural communication (Research group on Japanese railway architecture, 2024).

This shift imposes new requirements on IP construction: IP cannot remain at the level of ‘character design’ but must be embedded in specific use scenarios and everyday contexts. The IP-based activation of transport-cultural symbols is

essentially about converting 'historical presence' into 'everyday practice'—enabling cultural heritage to shift from being 'viewed' to being 'used', from 'protected' to 'consumed' (Wang, C., Zhi, J. Y., Qin, Y. & Liang, Z., 2021; Guo, K. Y., 2025).

5. Conclusion and Outlook

This study, set within the transport–tourism integration framework, has examined Qilu transport cultural symbols and explored pathways from cultural heritage to cultural IP. Our findings indicate that IP construction for transport-cultural symbols entails three transformations: at the symbolic level, moving from scattered distribution to systematic cataloguing, establishing a tripartite resource system of material, event-based, and spiritual symbols; at the design level, progressing from morphological extraction to design translation, endowing traditional symbols with contemporary expression through IP-oriented design language; and at the application level, shifting from static display to scene-embedded activation, enabling transport-cultural IP to achieve 'living transmission' in museums, train carriages, transit cards, and other concrete settings (Feng, L., 2020; Research group on urban cultural IP and bridge design, 2025; Wang, C., Zhi, J. Y., Qin, Y. & Liang, Z., 2021).

At a broader level, the significance of transport-cultural-symbol IP construction extends beyond

producing another line of creative merchandise. It addresses the fundamental dilemma of cultural-heritage conservation: how to prevent history from being forgotten, spaces from lying idle, and memories from being sealed away (The First Ancient Road Culture Academic Seminar Organizing Committee., 2025; China Network, 2025; Research group on Japanese railway architecture, 2024). When the 'Qilu No.1' train travels across the Shandong–Hebei landscape carrying artefact motifs, and when the gilded dragon-horse card emits its beep on city fare readers—transport heritage is no longer 'protected heritage' but 'lived practice' (Wang, C., Zhi, J. Y., Qin, Y. & Liang, Z., 2021; Luwang News, 2026).

A limitation of this study is that the design proposals have not yet undergone full-chain validation from prototyping to product launch, and market acceptance of the IP characters requires further empirical testing through user surveys (Guo, K. Y., 2025). Subsequent research could advance systematic IP development and quantitative evaluation, explore commercialisation pathways for Qilu transport-cultural-symbol IP, and provide more operational design support for Shandong's transport–tourism integration (Research group on urban cultural IP and bridge design, 2025; Wang, C., Zhi, J. Y., Qin, Y. & Liang, Z., 2021).

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