

What Holds High-Speed Rail Back: Lessons from Global Systems and California's Experience

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Introduction

California High-Speed Rail (CHSR) has been under development for more than a decade, yet progress has been slowed by delays, cost escalation, and unstable funding. This research examined the main barriers to timely and cost-effective delivery of CHSR and identified lessons that can guide future high-speed rail (HSR) projects in California. The study asked: Why has CHSR struggled to advance as planned, and what changes are needed to improve outcomes? To answer this, we compared CHSR with international HSR projects, studied Japan's land readjustment approach, reviewed U.S. rail integration practices, analyzed California's transportation legislation, and examined oversight reports and expert interviews. The results show that CHSR's biggest barriers are structural, not technical. Stable funding, stronger governance, and legal reforms are needed to keep projects on schedule and advance mobility in the Golden State.

Study Methods

This study applied a mixed-methods approach. First, we conducted a comparative analysis of CHSR against international high-speed rail systems in Japan, France, Germany, Spain, South Korea, and China. Key metrics such as cost per mile, speed targets, and delivery timelines were examined. Second, we reviewed Japan's Land Readjustment Act to assess how land pooling and reserve lands create sustainable funding and smoother right-of-way assembly. The findings were compared to U.S. eminent domain practices. Third, integration case studies were reviewed from international and U.S. contexts, including Europe's integrated networks, Amtrak's Northeast Corridor, and Los Angeles Metro's Regional Network Integration Study.

Fourth, California's legislative and funding framework was reviewed, with attention to Proposition 1A, California Environmental Quality Act (CEQA), and differences between highway and rail funding. Fifth,

we built a database of oversight reports, audits, and legislative documents to identify recurring concerns on funding, permitting, cost escalation, and right-of-way. Finally, semi-structured interviews with subject matter experts were conducted. These highlighted legal barriers, funding instability, project delivery methods, and governance issues. Data from all sources were synthesized to produce findings and recommendations.

California High-Speed Rail's biggest barriers are structural, not technical. Stable funding, stronger governance, and legal reforms are essential for timely delivery.

Findings

The research found that CHSR's greatest barriers are legal and financial, not technical. Our findings indicate that land acquisition, permitting delays, CEQA litigation, and utility relocations caused major inefficiencies. We also found that costs per mile are higher in the U.S. than in other countries, and ambitious speed and design choices can add risks. Thus far, funding has been unstable. Unlike highways, which rely on predictable federal-state partnerships, HSR depends on one-time measures such as Proposition 1A, cap-and-trade, and intermittent federal grants. This creates uncertainty that drives cost escalation. Findings also show that governance and oversight gaps also weaken delivery. Multiple agencies share responsibilities, but their roles are unclear, leading to delays. Experts noted that delivery methods (design-build, CM/GC, etc.) matter less than clear contracts, risk allocation, and early resolution of land and utility issues. International lessons show that Japan's land readjustment, Europe's rail integration, and dedicated funding streams all improve outcomes. U.S. experience shows the value of focusing on usable segments and reinvesting revenues. Overall, CHSR requires stronger governance, stable funding, and reforms to permitting, land acquisition, and eminent domain laws.

Policy/Practice Recommendations

1. Open doors to crowdsource financing as a supplemental tool.
2. Enable long-term partnerships with cities, utilities,

and other third parties instead of one-time land transactions.

3. Support SB-445 or similar laws requiring timely responses from third parties.
4. Optimize cash flow management through billing and payment reforms.
5. Adopt systematic value capture methods around stations and corridors.
6. Expedite permitting, land acquisition, and utility transfers through legislative and process changes.
7. Make a dedicated effort to incorporate expert recommendations, including stable funding, oversight, and system-wide planning.

These steps will improve future HSR delivery by reducing delays, stabilizing funding, and building stronger public and stakeholder trust.

About the Authors

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To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/research/2470



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