

2021



THE CHINESE RAILWAY MARKET

Facts, Figures, Players and Trends



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The Chinese railway market - Facts, Figures, Players and Trends

The Chinese government and the state railway CR have decided to shift the focus in the 14th Five-Year Plan (2021-2025) towards increasing efficiency instead of network expansion. In doing so, the state railway is changing course as digitalisation and automation will play a more important role than network expansion. The Chinese railway technology market will continue to grow in the next 5 years. However, growth will no longer be driven by the stagnating business of new line construction and new rolling stock, but by digital innovations and, in particular, the dynamically growing after-sales business.

In the new study “The Chinese Railway Market”, SCI Verkehr analyses and interprets from first-hand the latest planning targets and development goals of the currently most important country for railway technology.

The Chinese railway technology market has a volume of EUR 37 billion and will grow by 3.6% p.a. until 2025. The worldwide largest rail market will mainly benefit from the growing after-sales market (CAGR +9.3%). Due to declining new procurements in the high-speed segment, new business will remain at the current level across all segments. (CAGR +0.7%). Dynamic growth in the OEM market is expected for the freight wagon, electric multiple unit and light rail vehicle segments.

Chinese railway technology companies have been investing heavily in the research and development of modern railway technology for years. The strategic plan “Made in China 2025”, issued by the central government in 2015, especially targets high-tech sectors which include the high-tech sector of the railway industry which is currently largely dominated by foreign companies.

This also means that foreign railway technology companies will face increasingly more competition in the Chinese railway market. For example, foreign companies currently have a market share of less than 30% for some of the high-safety components of the new high-speed train of the type Fuxing while the market share for the previous model CRH was more than 80%.

Simultaneously, Chinese manufacturers are increasingly targeting foreign markets, partly due to the weakening domestic demand. For example, the large state-owned companies CRRC, CREC and CRCC have been able to win orders in almost all world regions in recent years. However, Chinese railway and infrastructure companies still only have a small market share in important regions such as Europe, North America and the CIS - albeit with an upward trajectory.

In concrete terms, this MultiClient market includes:

- Management summary listing the most important developments and trends in the railway market
- The structure and development of the railway transport markets and investment strategy
- An overview of the market development of the railway technology market, subdivided into product groups
- An analysis of rolling stock fleets and rail infrastructure stocks, differentiated by investment purpose, and market shares in the product segments
- Analysis and appraisal of the most significant infrastructure and system technology projects as well as rolling stock procurements

The market study is based on a number of sources of information from the press and discussions with experts which are continuously analysed, validated and entered into the SCI Database.

SCI Verkehr GmbH is an independent consultancy company specialising in the technology and economics of transport. We have close connections to the rail industry, with consultants in a wide range of specialist fields. We have an extensive network of experts in Germany and abroad and we specialise in market and strategy aspects for the mobility sector. Our activities focus on companies in the transport and rail industry, logistics, public and private transport companies and transport and economics departments in public administration at federal, regional and municipal level.

Your contact:

Susanne Müller

Phone: +49 221 93178 20

Fax: +49 221 93178 78

Email: s.mueller@sci.de

The MultiClient study "The Chinese Railway Market 2021" is now available from SCI Verkehr GmbH.

CONTENT

| | | |
|----------|---|-----------|
| 1 | Executive Summary: The Chinese Railway Market | 15 |
| 2 | Introduction and Methodology | 31 |
| 3 | Market Structures | 40 |
| 3.1 | Macroeconomic drivers | 40 |
| 3.2 | Institutional Structure | 41 |
| 3.3 | Operation Structure | 43 |
| 3.4 | Funding Structure | 44 |
| 3.5 | Investment | 45 |
| 4 | The Chinese Railway Transport Markets | 47 |
| 4.1 | Mainline Railway Transport Markets | 47 |
| 4.2 | Urban Rail Transport | 50 |
| 5 | Network Development | 52 |
| 5.1 | Mainline railway network development | 52 |
| 5.2 | Urban rail network development | 55 |
| 6 | Major suppliers in the Chinese market for railway technology and their overseas activities | 59 |
| 7 | The Chinese Market for Infrastructure | 70 |
| 8 | The Chinese Market for System Technology | 79 |
| 9 | The Chinese Market for Rolling Stock | 87 |

The study has about 136 pages.

1.1. Trends and Drivers

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1.1.7 Accessibility for foreign players and local content

There is no official regulation regarding local content share for products of railway technology, like e.g., in North America. Theoretically, foreign companies in China without local subsidiaries or Joint Ventures can compete equally with Chinese companies. But the Chinese market for railway technology is very difficult to access without local Joint Ventures. Usually, only niche products with high technology requirements are procured from abroad.

Foreign companies with local joint ventures concentrate on the component business for rolling stock and track system components. The electrification and signalling business are more difficult to access, as Chinese companies imported major technology and have own production for almost all state-of-the-art components.

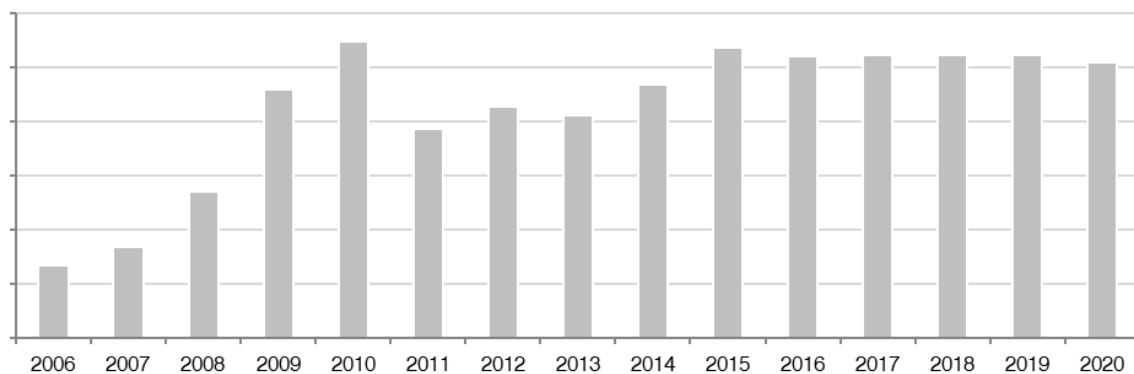
With the “Made in China 2025” program, the share of foreign products in the Chinese market is expected to further decrease. The Made in China 2025 strategic plan for China’s industrial development was first introduced in 2015. The plan proposed a “three steps” strategy of transforming China into a leading global manufacturing power by 2049. Specifically, it promoted breakthroughs in the following ten key sectors:

[.....]

3.5 Investments

The railway fixed asset investment for mainline and high-speed railway increased from CNY 207 billion in 2006 to CNY 824 billion in 2015, representing an annual growth rate of 15%. After 2015, investments decreased slightly but remain at a very high level above CNY 800 billion. In 2020, total investments in fixed assets decreased for the first time since 2015 below CNY 800 billion. But investments in 2020 is still high with CNY 781 billion.

China's fixed asset investment in railway [EUR billion]



Constant exchange rate 1 CNY=0.13 EUR for all years

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Figure 1: Fixed asset investment in railway

Total rail fixed asset investment consists of rail construction investment, innovation and refurbishment investment and rolling stock investment. Rail infrastructure construction investment includes new rail construction and line transformation. Replacement and refurbishment investment includes rail maintenance and refurbishment of rolling stock (excluding urban transit rail vehicles).

[.....]

6 Major suppliers in the Chinese market for railway technology and their overseas activities

6.1 Rolling stock manufacturer CRRC

CRRC is by far the largest manufacturer of rolling stock worldwide and dominates the Chinese market with a market share of more than 95%. CRRC manufactures all kinds of rolling stock. However, CRRC is also present in various other segments and produces trucks, buses, construction materials, turnouts, wind turbines and intelligent machines. Overall CRRC's market segments are as follows:

[....]

The European business is relatively difficult to develop for CRRC, as the certification requirements are complicated, and all other international leading companies and technology leaders Siemens, Alstom and Bombardier are headquartered in Europe. Turkey is an exception within Europe. CRRC has a local production site in Turkey and delivered new metro vehicles and LRVs to Istanbul, Izmir, Ankara and Samsun. Besides Turkey, CRRC could win first contracts as with small order size by the following customers besides Turkey in Europe:

- Hungary: Electric locomotives and electro hybrid shunter locomotives for Rail Cargo Hungary (RCH)
- Hungary: DMU for Hungarian state railway MÁV
- Germany: Freight wagon and hybrid shunting locomotive for Deutsche Bahn
- Macedonia: EMU and DMU for Macedonian Railway
- [....]

[....]

9.8 Light Rail Vehicles

[....]

9.8.2 Installed Base and Development of Stock

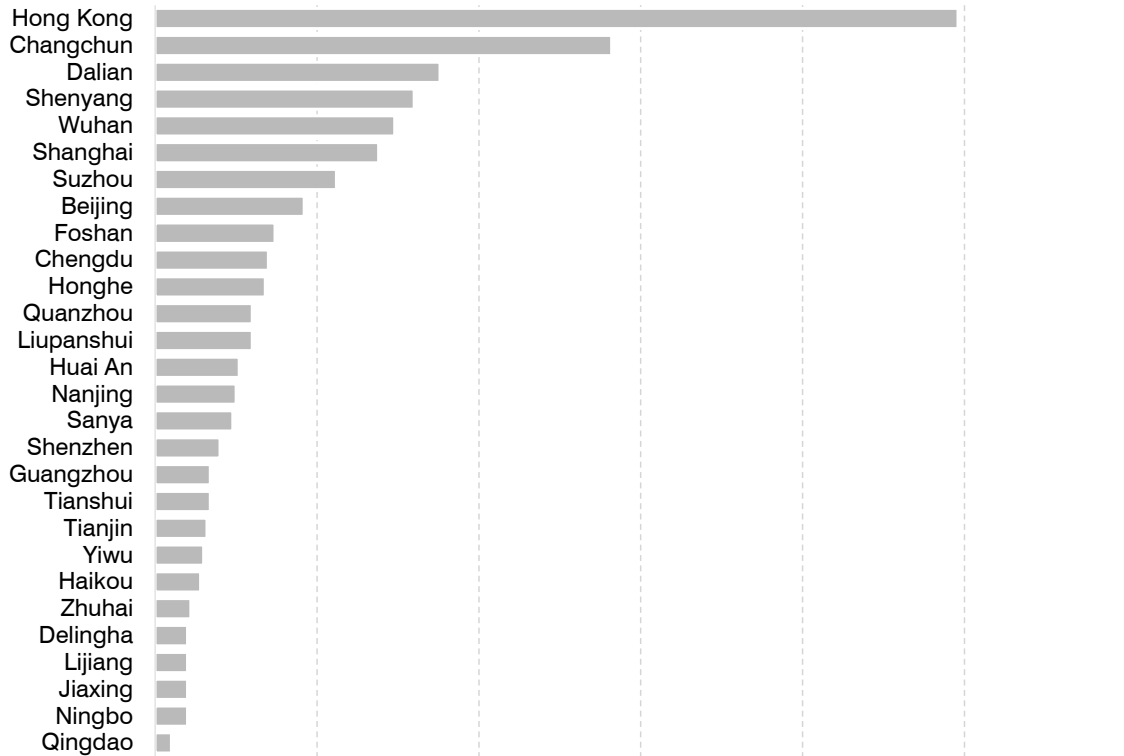
In large Chinese metropolitan areas, investments are primarily made into metro systems as a mass transport mode. Existing and planned LRT systems serve as complementary systems.

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Installed base LRV China 2020 [units]



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Figure 2: Installed base 2020 in China

[...]

9.8.3 Suppliers

Besides CRRC, Alstom and China Railway Signal and Communication Corp. (CRSC) delivered LRVs to Chinese cities between 2016 and 2020. Alstom delivered new LRV to Shanghai through its local joint venture in Shanghai.

CRSC, which is the state-owned company specialised in railway signalling technology, entered the LRV market with first order in Tianshui, a medium-sized city. A public private partnership contract was awarded in December 2017 to a consortium including CRSC and Suzhou Gaoxin Tramway Co Ltd for the new light-rail system in the city. In 2014, CRSC founded a subsidiary named Tong Hao Railway Vehicles Corp which specialises in LRV technology. In October 2017, a prototype vehicle has been presented in the city of Changsa. Tong Hao Railway Vehicles was established as a joint venture between CRSC (66%), Xiangtan Electric Manufacturing Group Corp (17%) and Czech company Inekon Group (17%).

Shenyang Xinguan is a private company with one contract for LRVs so far, which were delivered before 2016. The company delivered to Changchun. Shenyang Xinguan does not have the technology for 100% low-floor LRVs.

[...]

9.8.4 Market Volume and Outlook

| Market Volume and Market Development Light-rail vehicles | | Light-rail vehicles | CAGR 2020–25 [% p.a.] |
|--|---------------------------------|---------------------|-----------------------|
| Installed base | Cars 2020 | xx | xx |
| | Average age 2020 (in years) | xx | xx |
| Market for new vehicles | Average market volume 2019-2021 | xx | xx |
| Market for after-sales | Average market volume 2019-2021 | xx | xx |

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Key drivers of new procurements of LRVs are:

| Drivers of procurements | Brief description | Relevance | Trend (5 years) |
|---|--|-----------|-----------------|
| New development and upgrade of infrastructure | A market for light rail vehicles has been increasingly developing since 2015 in “midsized” cities and as a complementary system to metro networks in large cities. | ● | ↑ |
| Approval from the central government | An advantage of LRT systems in China is the simpler approval process compared to metro systems. Cities or provinces can decide independently whether and to what extent they want to develop a new LRT system, and do not need the approval of the central government. | ● | ↑ |
| Demand for modern public transport | Urbanisation, environmental problems, traffic jams and a shortage of parking space in cities pose obstacles for their future development. | ◐ | ↗ |
| Investment fund | As construction of new LRT is less cost-intensive than metro lines, municipalities prefer to invest in LRT rather than metro by budget limitation. | ◐ | ↗ |

Relevance for procurements: ● = very high, ◐ = high, ◑ = medium, ◒ = low, ○ = none

5-year trend: ↑ = strongly increasing, ↗ = increasing, → = constant, ↘ = decreasing, ↓ = strongly decreasing

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[....]

The Chinese LRV market is expected to grow significantly over the next 5 years. At least 32 cities are expected to procure new LRVs and are currently constructing the first line of their future light-rail network. The long-term potential is very high.

[....]

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