APPENDIX

FORECAST METHODOLOGY

The forecast methodology used in this World Rail Market Study was further refined compared to previous editions of the study, but is fundamentally consistent to ensure comparability of the reports. The rates of market development are captured by compound annual growth rates (CAGR) instead of simple growth rates (apart from installed base). A general overview of the methodology and notable refinements incorporated this year are described below.

Installed base

In line with previous studies, the installed base was examined in detail as it is the basis of our forecasts. It provides a deep understanding of market trends, helps challenge market volume estimates, and plays a critical role in calculating services volumes.

The data on the installed base covers the number of vehicles in operation in 2025, their age structure, and their allocation to the various product categories (e.g., passenger locomotives and freight locomotives). Given the continued trend towards alternative propulsion and Automatic Train Operations, the installed base continues to be differentiated by propulsion type (e.g., battery MUs, hybrid MUs, fuel cell MUs) in addition to electric and diesel vehicles and type of metro operations (with driver versus driverless). The installed base also records the number of track-kilometres in operation, the breakdown between electrified and non-electrified lines, and the breakdown by traffic segment (e.g., VHS, freight, mainline, metro).

Numerous data sources were used for the study and analysis. Company websites, annual reports, and official government statistics were prioritised over other existing studies and databases. The data collection was automated to a high degree to limit the potential for human errors in the process. Manual checks and interviews were conducted with industry experts to confirm the results and assumptions as well as to fill data gaps where necessary. Restatements on previous report versions were conducted if necessary (e.g., when newer data sources were available than at the time of report writing).

Market value status quo in 2023-2025

The current market value is defined as the average annual order intake between 2023 and 2025. Large and multi-year projects are assigned to the year in which the contract is concluded. The quantification of the services segment, on the other hand, is based on annual expenditure.

Quantification of the market value was based on three main sources:

- **Data provided by UNIFE members** – At the start, UNIFE member companies provided their individual views of market sizes for the various market segments. Historical project lists and information on average prices and replacement periods were also made available. Bain & Company validated the consistency and plausibility of this data (e.g., by comparing the values with data from the installed base and previous editions of the study) and supplemented it with data from other sources. Furthermore, all market figures were discussed and validated with participating UNIFE member companies.

- **Information gathered from Bain & Company's own research** – Market size estimates differed in some market segments in several countries. To address these discrepancies, additional research was performed on projects and contracts, spending budgets, replacement rates, and average prices.

- **Calculation based on assumptions** – For the few segments and countries where available information was not of the required quality, market values were calculated based on average replacement rates, age structures, and average prices per segment and country/region. This applies in particular to the services market. Experts from the rail supply industry reviewed and validated the methodology, assumptions, and results.

Forecast 2026-2031

The rail market forecast for a six-year period is based on a combination of a bottom-up approach, using project information obtained from the three sources described above, and a top-down estimation. The top-down estimation is conducted with a model which relies on macroeconomic and rail-specific factors. The bottom-up approach was preferred for segments and countries with hig-quality data. The top-down approach was used to complement segments and geographies where data quality and project visibility were lower, and to validate the bottom-up market values.

As a first step, the project team identified country-specific drivers. These factors influence the overall development of the rail market in each country across one or more forecast segments.

Examples of country-specific drivers include:

- Political support for rail systems
- GDP growth
- Point in the life cycle of the rail industry
- Population growth
- Degree of urbanisation

FORECAST METHODOLOGY

Segment-specific drivers influence specific forecast categories and, therefore, specific segments. In addition to installed base data like fleet size and age structure, other drivers include:

- Average prices
- Network capacity
- Passenger and freight traffic growth
- Planned network extensions/ reductions
- Product mix shift trends
- Productivity gains
- Replacement periods
- Rolling stock usage intensity
- Share of fleet refurbished

The segment-specific drivers were collected from publicly available sources whenever possible. Additional assumptions (including from previous versions of the study) were validated with industry experts and UNIFE members.

The historical macroeconomic data used for the study was based on publicly available statistics. Various traffic forecasts for the rail sector, including the recovery after the COVID-19 pandemic and the degree of potential political support, were evaluated to determine future traffic demand. When no independent forecast was available, the forecast was determined within the framework of the above model. Other forward-looking drivers were validated by industry experts and UNIFE members.

In large and highly developed countries, which represent a major part of the total demand, most of the market is driven by the replacement of existing material. Replacement rates were therefore analysed based on detailed age structures and time-series calculations.

Driver trees were generated to determine driver interdependency. The first step in the modelling process was to develop a forecast of infrastructure markets, providing input for the rolling stock, rail control, and services markets.

In addition to GDP and traffic growth, political support plays a significant role in network and fleet expansions, especially in non-mature countries. Productivity gains could partially prevent traffic growth from translating directly into larger networks and fleets. Similarly, the assumed price has a strong influence on future market size. Prices are therefore based on averages for each country, but local labour and material costs, efficiency ratios, the quality of products procured, and services provided are also considered.

For the 2026 edition of the report, government stimulus was not considered a relevant market driver and, therefore, assumed to be neutral in our forecast. Following COVID-19, multiple governments announced spending programmes to

support and stabilise economic activity. As opposed to the 2024 edition, research determined that COVID-19 relief programmes were mostly phased out already. Assumptions are based on public information as of May 2026 and do not include any future, unplanned government stimulus programmes. Assumptions and results were validated with industry experts and UNIFE members.

Once combined, driver trees for each country and segment helped to determine future market value and included considerations for:

- Demand generated by growth
- Demand resulting from the shift between categories (e.g., from push-pull trains to multiple units and high-speed trains)
- Demand driven by necessary replacements
- Feasibility of market development (subject to consideration for political support, financial resources, and stability)
- Demand generated by government stimulus

The numbers presented in the status quo section show unadjusted order and project values in EUR as provided by the UNIFE members, incorporating the relevant conversion and currency debasement. Within the Eurozone, 2023 and 2024 saw stable or decreasing production price indexes. In order not to distort 2023 values by further deflating the baseline, EUR order values provided by the members were used for the status quo.

Forecasts also indicate real order values in EUR and real growth, based on UNIFE member inputs. Forecasts are presented in 2025 EUR prices and do not account for potential inflation in the future. Hence, growth figures are real growth figures.