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Reading
Sample

LIGHT RAIL VEHICLES – GLOBAL MARKET TRENDS

Forecast, Installed Base, Manufacturers,
Infrastructure and Rolling Stock Projects

2022

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Forecast, Installed Base, Manufacturers, Infrastructure and Rolling Stock Projects

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This MultiClient Study “Light Rail Vehicles – Global Market Trends” offers an analysis and well-founded assessment of the market for light rail vehicles. SCI Verkehr has already compiled eight MultiClient Studies on this topic.

The market for LRVs is a niche market, which has grown in the past decade and is expected to proceed with its growth over the next 5 years, despite current macroeconomic problems in most of the countries in the world. The world economy is currently facing many challenges such as high inflation in Europe and North America, energy crisis after the begin of Ukraine war and continuing COVID-lockdown in China. The outlook is fraught with high uncertainty. Under the assumption that no heavy recession appears in near future, SCI Verkehr forecast a growth rate of 4% p.a. from 2021 to 2026 for the total market starting from EUR 5.7 billion.

In concrete terms, this market study of LRVs includes:

- An overview of the worldwide market for LRVs differentiated by region, including an in-depth analysis of all relevant national markets.
- Comprehensive analyses of the network length, installed base and average vehicle age
- Forecast of the OEM and after-sales market size until 2030
- An analysis of the current market shares of important LRV manufacturers
- An overview of the most important drivers behind the procurement and after-sales of LRVs in the individual regions
- A summary of global LRT systems, future infrastructure projects, network lengths and forecasts of network developments up to 2030

This MultiClient Study is based on numerous information sources, which are continuously analysed and evaluated, and are recorded in SCI Verkehr’s database system.

All in all, the study provides a well-founded analysis of the worldwide market for LRVs. It provides key, comprehensive and well-structured information on this vehicle segment. The study also serves to support operational and strategic corporate planning of players in the transport and railway industry.

2. Europe

2.1 Total Market

2.1.1 Market Overview

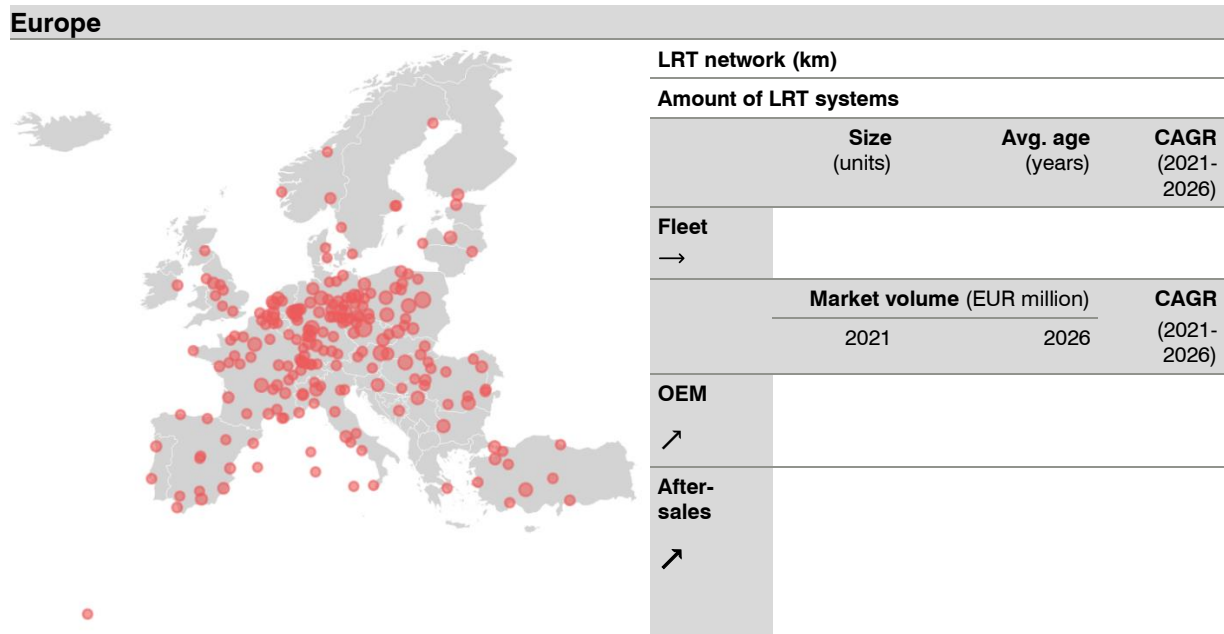


Figure 8: Europe: LRV market overview

Europe remains the largest LRV market in the world regarding the procurements of new vehicles and after-sales expenditures as well as the operating installed base.

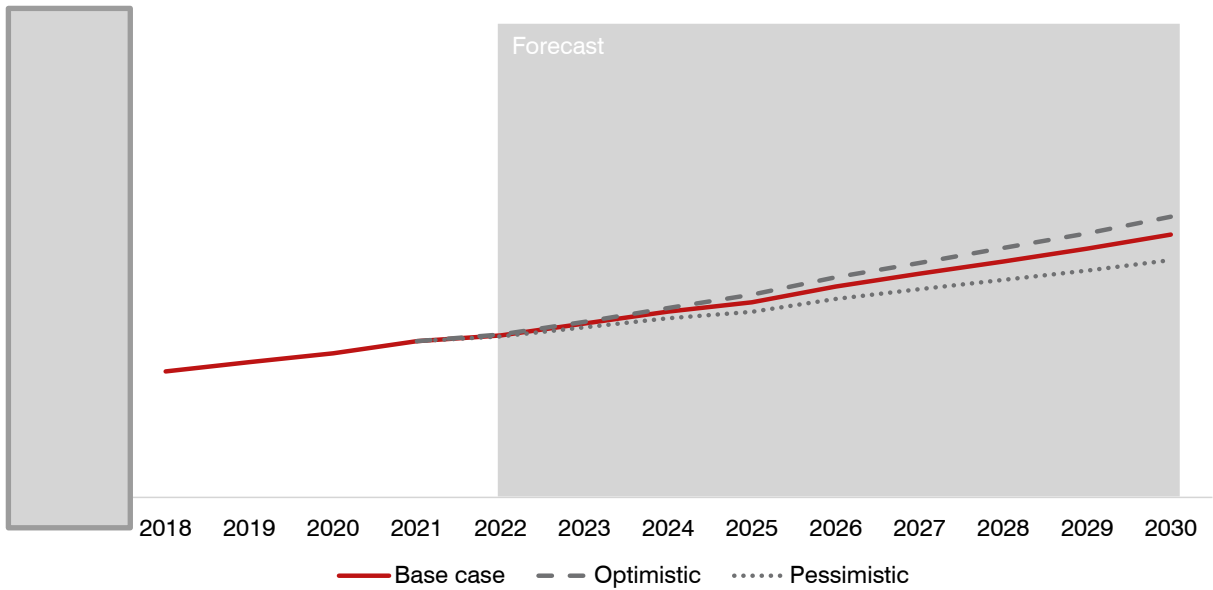
SCI Verkehr expects an annual growth of around xx% from 2021 to 2026, starting from a high level. The high OEM growth is mainly based on higher inflation rates and technology upgrades of LRVs leading to higher unit price per vehicle. The annual market growth of the upcoming five years in units remains at around xx%, which still show a solid market development starting already from a high current level in time of high inflation and budget limitation of municipalities. The forecast assumes of nonheavy recession in Europe in mid-term. Contracted orders and planned investments for replacement will be realised as planned. Introduction of tram-train systems in Germany and Austria combined with a large order contribute to stable and high market size as well.

2.1.2 Infrastructure

Around xx km of light rail transit networks are currently in operation in around xx European cities. LRT networks in Europe are configured in various different gauges and different voltages. With nearly 65%, the standard gauge (1,435 mm) is the most common. Another fourth of the European LRT network is equipped with metre gauge, among them the networks in Belgrade, Mannheim, Helsinki and Zagreb being the largest. In total there are eight different voltages being employed in European networks. Around half of the network employs 600 V DC. Other common voltages are 750 V DC, 650 V DC, 660 V DC and 700 V DC sorted by reducing relevance.

The largest LRT networks in Europe are in Brussels, Cologne, Chorzow, Berlin, Vienna and Budapest with all networks exceeding 150 km in network length, Brussels even slightly exceeding 200 km. An additional 20 networks exceed 100 km in length. The total network length in Europe amounts to nearly xx km. This represents around 55% of the global network.

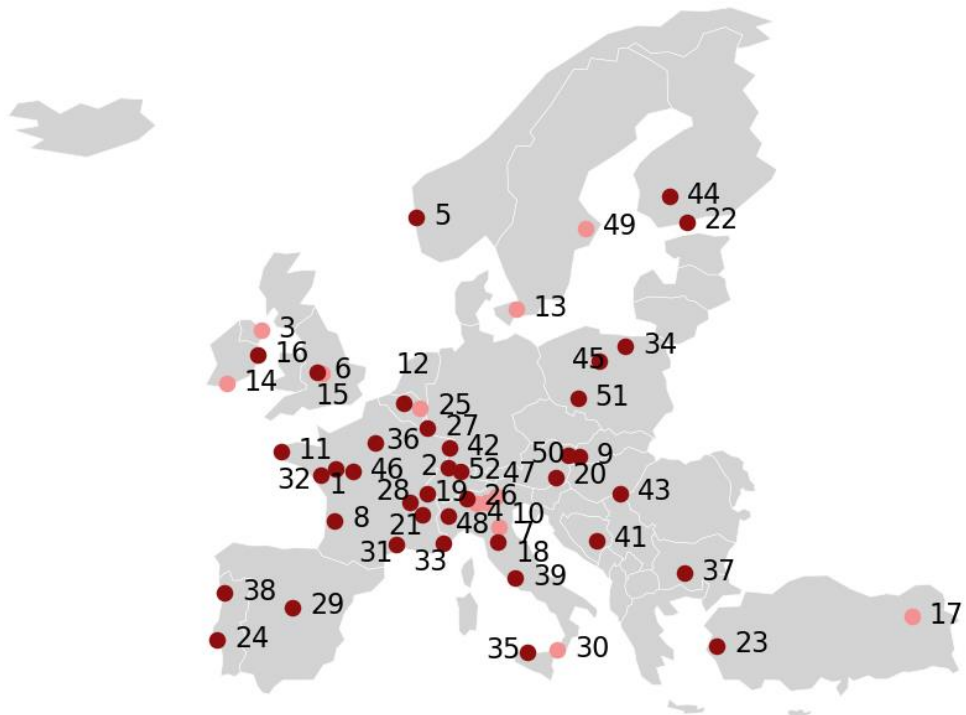
LRT system in operation in Europe (in km)



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Figure 10: Europe: LRT system infrastructure development

Planned expansions for LRT networks in Europe (Germany displayed separately due to high number of cities making the chart in comprehensible)

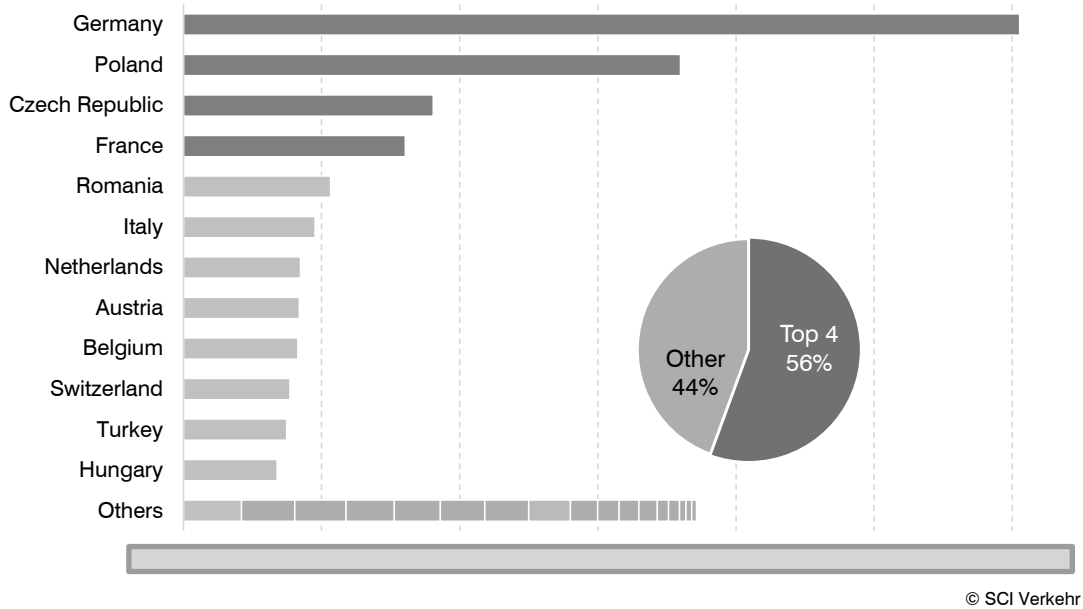


LRT infrastructure expansions in Europe by country and city (non-core)					
Country	City	Project title	Distance in km	Expected completion	Project status
Bosnia-Herzegovina	Sarajevo	Extension Ilidza – Hrasnica	6.4	2023	Construction
Finland	Helsinki	Jokeri Tram	25	2024	Construction
Ireland	Cork	Ballincollig - City Centre - Mahon	17	2030	Planning

2.1.3 Fleet

In Europe there are twelve national markets with a fleet of more than xx units among the total of 29 countries operating LRT. Germany is hosting the largest fleet in Europe with around one fourth of the European fleet and around one sixth of the global fleet. Other large markets are found in Eastern Europe such as Poland, Czech Republic and Romania. In addition, France has become the second largest Western European operator in the last decades with its ambitious LRV expansion plan.

LRV fleet per country in Europe (in units, 2021)



The age distributions highlight that the largest operator countries in Europe have a large share of old vehicles that need to be replaced soon. Especially Poland's, the Czech Republic's, Italy's and particularly the Romanian fleets are considerably old with an average age of more than xx years. The countries with smaller LRT systems have a rather younger fleet resulting from recent procurements due to infrastructure expansion. In addition, France having expanded the national LRT systems on a wider scale in the past decades possess a relatively young fleet with only xx years on average.

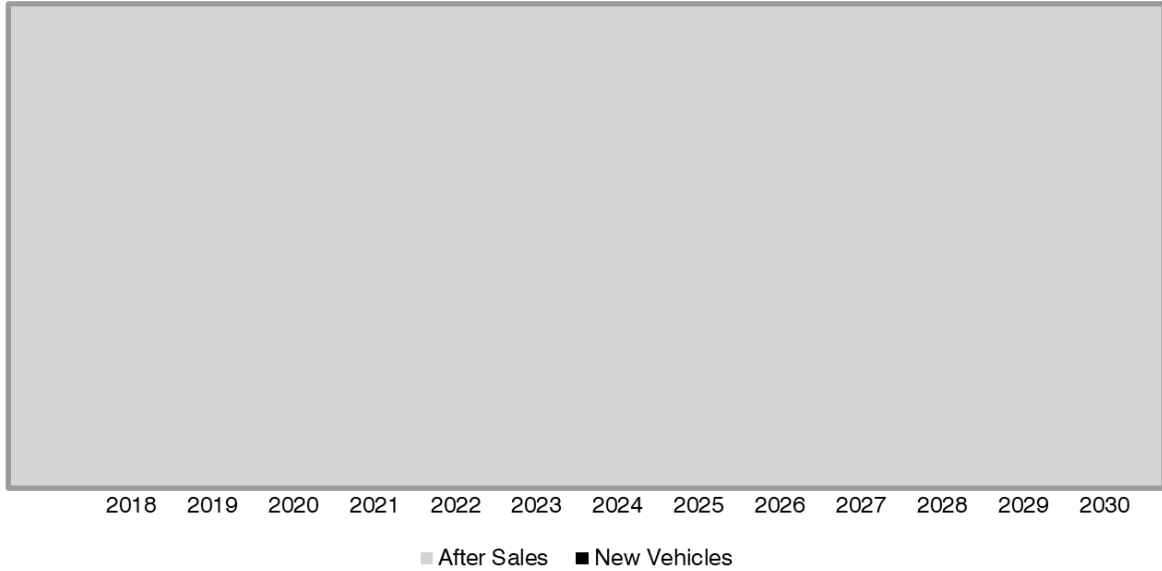
2.1.4 Manufacturers

The European market for LRV is controlled by regional manufacturers. Between Western and Eastern Europe there are still differences concerning the manufacturing landscape.

Largest manufacturers of LRV in Europe		
Manufacturer	Activity (Brief description)	Units delivered (2017 – 2021)
Alstom	The French manufacturer produced 95% of the deliveries for France, i.e. 185 LRVs, as well as some 40 LRVs in Germany, thus constituting 10% of the total European production. The Citadis platform includes, tram-train version, 100 low-floor vehicle and catenary free variant.	220

2.1.5 Market volume & Development

LRV market volume in Europe (in EUR million)



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OEM projects for LRV in Europe (non-core)				
Country / City	Units	Type	Delivery	Remarks
Denmark Copenhagen	27	Avenio	2023 - 2024	Hovestadens Letbane has selected preferred bidders for contracts to build, equip, operate and maintain the 28 km line, which will link 11 municipalities on the western side of the city. The transport systems contract, which encompasses railway infrastructure and rolling stock, have been awarded to a consortium of Siemens and Aarsleff Rail, Denmark. The contract includes 27 four-car Avenio LRVs, rail system electrification, signalling, communication, workshop equipment, overall project management and system integration. The contract will be implemented as a turnkey project. It also includes maintenance services for a term of 15 years. Commissioning of the LRT line is planned for 2024.