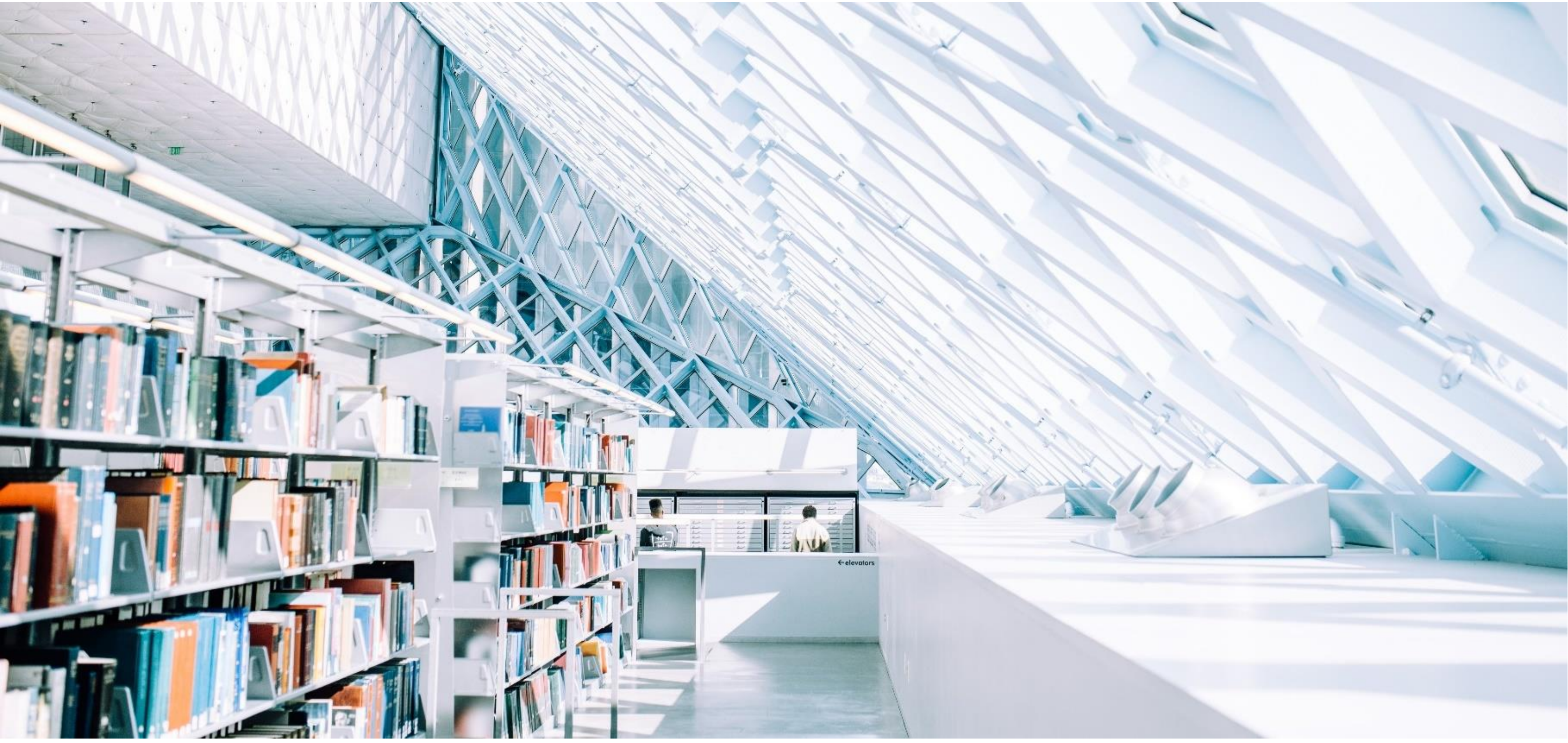
WORLDWIDE MARKET FOR RAILWAY INDUSTRIES

Market Volume for OEM Business and After-Sales Service as well as Prospects for Market Developments of Infrastructure and Rolling Stock

2024



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Market Volumes for OEM Business and After-Sales Service as well as Prospects for Market Developments of Infrastructure and Rolling Stock

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Andreas Wolf (Project Lead)
Alexander Borchers
Anka Solbrig
Birgit Kartal
Felix Weiß
Jonathan Mauersberger
Katharina Dörkßen
Mark Vetter
Martin Hohn
Maximilian Bauch
Nemanja Nedeljkovic
Nicolas Wille
Tristan Mittelhaus
Ulf Manhold
Ying Li

Supervision, Editorial & Layout
Maria Leenen
Antorlina Mandal
Nicole Heinrichs

Disclaimer

The forecasts of this world market study are subject to higher uncertainties given the current world situation. Both the uncertain economic and geopolitical situation as well as currency fluctuations and inflation influence developments in the future. SCI Verkehr's forecasts are based on the unique SCI/DATABASE, which systematically records installed base and projects worldwide. Besides, SCI Verkehr bases its drivers and market models for the transport markets and the OEM and after-sales markets on forecasts of global institutions, such as IMF, OECD or WTO on economic development. Based on these assumptions, SCI Verkehr expects many contracted and planned construction and procurement projects to be realised. However, volumes of the projects have been critically reviewed. Should geopolitical conflicts escalate, or the global economy slip into recession, SCI Verkehr also expects disruptions on the global rail markets.

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CONTENT

The study “Worldwide Market for Railway Industries”, provides a comprehensive insight into the structures, installed bases, volumes, and development trends in the global railway market. The global rail market has exceeded the EUR 200 billion mark and is projected to continue growing dynamically at a rate of 4.0% over the next five years, according to the study "Worldwide Market for Railway Industries 2024" by SCI/Verkehr. The current study, covering seven world regions, shows that digital solutions are key. While the global rail systems technology sector is growing faster than the overall market at 4.6%, the share of digital components and processes is also significantly increasing in traditional product segments such as rail infrastructure and rolling stock.

The demand for market data, up-to-date forecasts and expert assessments in the rail industry will remain high in 2024. This is why SCI Verkehr is publishing its "Worldwide Market for Railway Industries" study again this year as part of the leading trade fair InnoTrans, in which we provide insights and outlooks into global product market segments and regional developments at our high quality and with a fresh, new design.

SCI Verkehr conducts ‘bottom-up’ analyses of all relevant product segments. An extensive database, developed in-house, allows SCI Verkehr to analyse business segments, market regions, and even single country markets. Thanks to the project-based data collection, the database also provides input for a detailed analysis of OEM and After-Sales markets. SCI Verkehr has enhanced its methodologies over the years and is e.g., able to build its prognosis based on real age structures of fleets.

In concrete terms, this MultiClient Study includes:

- An overview of the market development of the global market for railway industries, divided into seven world market regions and product segments of infrastructure, system technology and rolling stock.
- Structure and development of the global railway technology market in Europe, North and South America, Asia, Australia/Pacific, the CIS and Africa/Middle East.
- Market size, market development and future procurement potential of the OEM and aftersales markets for the product segments until 2028.
- Railway industry companies and their market shares in the product segments and activities in the world market regions.

Our data annex in Excel format includes even more information:

- All figures and graphs concerning market volumes, installed bases or market shares displayed in this study are transparently and comprehensively available
- In addition to the study, the data annex contains technical details on infrastructure (gauge, voltage systems) and age structure of the rolling stock in the regions as well as installed base and deliveries in the top markets per region
- Apply the data sets for an individual evaluation and configuration or to access and supplement available market data

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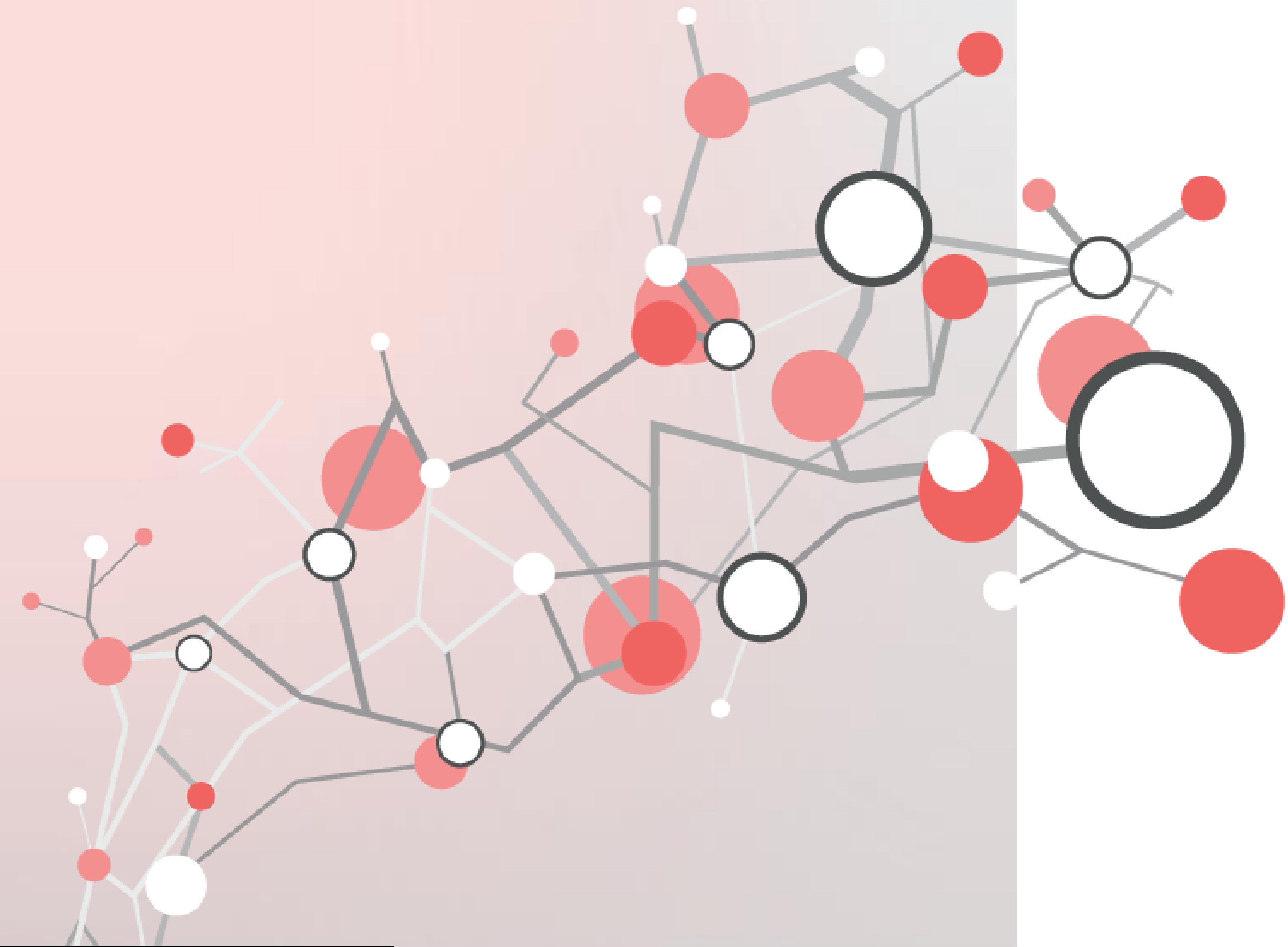
Your contact: Kata Borbély
SCI Verkehr GmbH
Tel: +49 221 93178 20
Fax: +49 221 93178 78
E-mail: sales@sci.de



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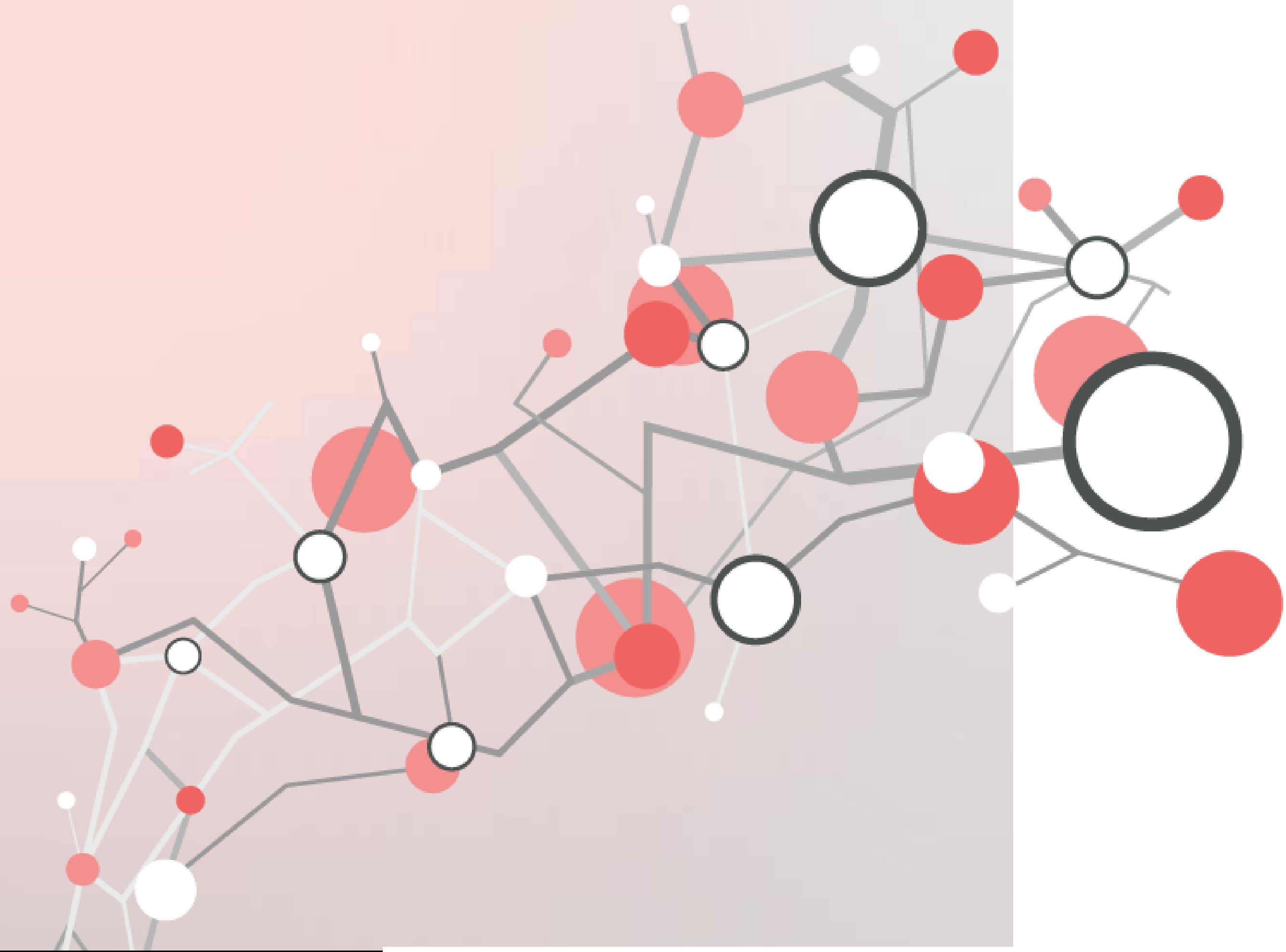
Executive Summary

Global Railway Market Breaks the **EUR 200** billion Mark

Trends and drivers impacting the worldwide market for railway industries:

- Market volume is increasing by 4.0% until 2028 - protectionism impacts market accessibility
- Digitalisation as global driver of growth– system technology outperforms traditional railway products
- The railway industry loses China as a growth driver – India and the Middle East step in
- Network electrification in Asia reaches 70% - widespread replacement of freight locomotives with alternative drive concepts still pending
- Global rail transport performance has largely recovered from the Covid-19 impact – Asia most important region in all transport segments



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The Market for System Technology

The Market for System Technology

Control Command and Signalling

Market Development and Market Drivers

The average global CCS market volume for 2023 amounts to almost EUR xx billion and is expected to increase by a CAGR of x.x% through 2028.

CCS: New development and upgrade (OEM)			
Region	**Average market volume 2023 (EUR million)**	**CAGR 2023–2028 (% p.a.)**	**Average market volume 2028 (EUR million)**
Europe	xx	xx	xx
North America	xx	xx	xx
South-/ Central America	xx	xx	xx
Asia	xx	xx	xx
CIS	xx	xx	xx
Africa/Middle East	xx	xx	xx
Australia/Pacific	xx	xx	xx
Total	**xx**	**xx**	**xx**
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Figure 1: Control command and signalling – new development and upgrade (OEM)

OEM accounts for less than half of the global market volume (xx%) but until 2028 it will grow faster than the after-sales market (x.x% CAGR vs. x.x% CAGR).

Like for the after-sales market (see below), electronic interlocking technology will be a noteworthy product group also in the OEM market. Regarding absolute size, it already ranks second behind train control systems. Until 2028, a CAGR of x.x% is expected, reflecting the need for state-of-the-art interlocking technologies for smooth operations and best efficiency.

The OEM market is mainly driven by the large number of current line upgrades and new built lines. Also, the market is driven by the growing importance of CCS systems themselves: the more complex rail systems become, the more important control command and signalling are for the efficiency of rail operation and the quality of transport service.

SCI Verkehr expects the following developments in selected regional OEM-markets:

– **Africa** / **Middle East** is expected to be the fastest-growing market region from 2023 to 2028. Growth is forecast at a CAGR of x.x%, with a strong focus on new development and upgrades […].
– […]

CCS: After-sales services			
Region	**Average market volume 2023 (EUR million)**	**CAGR 2023–2028 (% p.a.)**	**Average market volume 2028 (EUR million)**
Europe	xx	xx	xx
North America	xx	xx	xx
South-/ Central America	xx	xx	xx
Asia	xx	xx	xx
CIS	xx	xx	xx
Africa/Middle East	xx	xx	xx
Australia/Pacific	xx	xx	xx
Total	**xx**	**xx**	**xx**

CCS: After-sales services			
Region	**Average market volume 2023 (EUR million)**	**CAGR 2023–2028 (% p.a.)**	**Average market volume 2028 (EUR million)**
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Figure 2: Control command and signalling – after-sales services

After-sales (renewal and maintenance) accounts for most of the global market volume (55%). Nevertheless, it is expected to lose some of its relative importance as […]

The most important drivers for CCS systems are the following:

Drivers – CCS	Relevance	Trend
Population and economic growth increase demand for mobility		
Due to urbanisation and population growth, the worldwide demand for urban, regional and long-distance transportation is […]	◕	↗
Increasing rail transport drives demand for modern technical solutions		
Efficiency and safety standards are rising in rail transportation (both freight and passenger) enabling e.g., higher utilisation rates of infrastructure and rolling stock, and driverless/fully automated train control. […]	●	↗
Digitisation enhances the role of CCS as a more comprehensive tool for railways		
Thanks to digitisation, CCS systems are not only providing operational safety but […]	●	↗
Boundaries between product groups are gradually dissolving		
A rising number of infrastructure managers (especially of urban networks) are no longer demanding a specific CCS product (in the first stage). Instead, […]	◕	↑
Technical necessities and economic efficiencies require combination of CCS works		
Growing technical and functional interdependencies between individual CCS product segments make it technically necessary to […]	◑	↗
Harmonisation of CCS systems provide operational and economic advantages		
A harmonised state-of-the-art systems landscape enables much more embedded control of rail infrastructure and operations. […]	◕	→
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Figure 3: Control command and signalling – relevance and trends of drivers

Installed Base

Control command and signalling (CCS) is an essential part of rail infrastructure and thus of railway operations. As such, the CCS market benefits from a new global awareness of railways. Societies, economies and politicians worldwide are increasingly becoming aware of the possibilities that railways offer for sustainable mobility and efficient transport. This is driving investments in rail infrastructure, including CCS products increasing the productivity of the system as such. […]

Suppliers

In terms of the manufacturer landscape, the focus of this study is on the market for new development and upgrades, as many network operators carry out maintenance and renewal works themselves. This leads to a market that is rather closed to third parties. The share of the total market that is actually accessible is normally higher for new development and upgrade projects than for renewal and maintenance.

Five companies lead the world market for CCS, all originating from Europe and Asia. China's CRSC is the market leader with a share of almost […].

A high number of smaller suppliers serve regional markets and maintain a strong position in their respective home markets. Since CCS technology varies considerably depending on region […].

Control command and signalling – World market share per manufacturer (2019-2023; %)

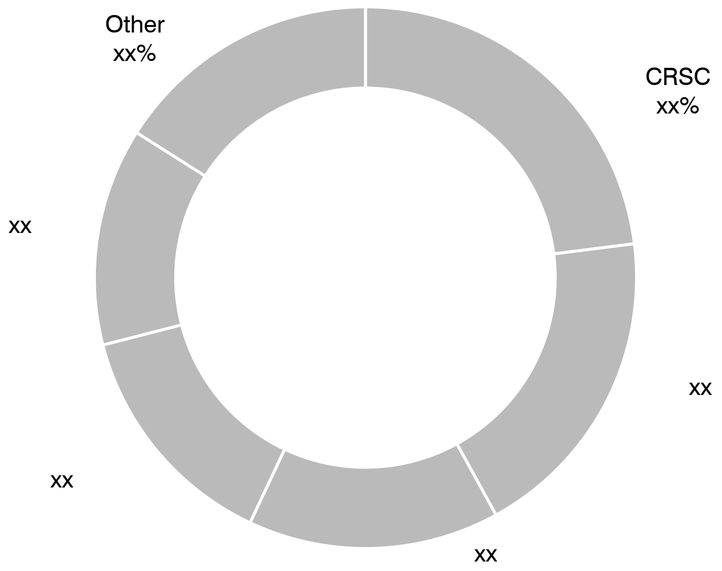

Figure 4: Control command and signalling – world market share per manufacturer

Compared to SCI's previous world market study (2022), the largest five suppliers managed to […]

Control Command and Signalling: Manufacturers		
Manufacturer	**Recent development**	**Market share 2019-2023**
CRSC	Market leader in Asia because of its predominant position in China. […]	xx%
xxx	Global player with strong position in […]	xx%
xxx	[…]	xx%
xxx	[…]	xx%
xxx	[…]	xx%
Others	[…]	xx%

The supplier landscape has been subject to major consolidations in recent years (with e.g., the takeover of Ansaldo STS by Hitachi), a process which is still ongoing: […].

Developments in the World Market Regions

Europe – CCS	
Market volume & outlook	Europe is the largest market region as it accounts for almost half of the global volume. After-sales dominates the market in Europe, because there is a large installed base of CCS systems. […]
Installed base	Europe is the market region with the densest railway networks, as well as some of the most advanced technologically. Nevertheless, there is a wide variety within the countries. Interoperability and the harmonisation of CCS systems are big topics in Europe – but they are difficult to achieve given national approaches. […]
Suppliers	Europe is home to four of the four most important suppliers Alstom (incl. Bombardier), Hitachi (former Ansaldo STS), Siemens and Thales. This makes the region the global centre for CCS innovations. Several manufacturers often compete for one project with almost equally efficient platforms for specific applications. In general, specific customer requirements have increased in the signalling installation industry, which leads to a strengthening of niche providers. […]

North America – CCS	
Market volume & outlook	[…]
Installed base	[…]
Suppliers	[…]

[…]

Australia/Pacific – CCS	
Market volume & outlook	[…]
Installed base	[…]
Suppliers	[…]

Definition and Brief Description

Control Command and Signalling (CCS)	
Criteria	**Brief description**
Definition	Control command and signalling (CCS) is the term used to define the technical wayside resources for controlling and securing rail transport.
Sub-segments	The following product segments each take on different subtasks: Train control systems (including Conventional train control systems as well as Communication-based train control systems like ETCS and CBTC); […].
Fields of operation	The more complex rail systems become, the more important CCS (beyond its central safety functions) becomes for the efficiency of rail operation and the quality of transport service. A more flexible control of the use of resources facilitates […].
Delimitation	The CCS segment focuses exclusively on wayside equipment; […]
Assessment basis	The diversity of products and technologies in the field of CCS makes it difficult to classify and analyse according to the aforementioned sub-segments. […]
Service life	Due to technical developments, modern systems tend to have shorter lifetimes than older (e.g. mechanical) installations. […]
After-sales	After-sales in CCS is made up of maintenance and renewal. […]
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Figure 5: Control command and signalling – definition