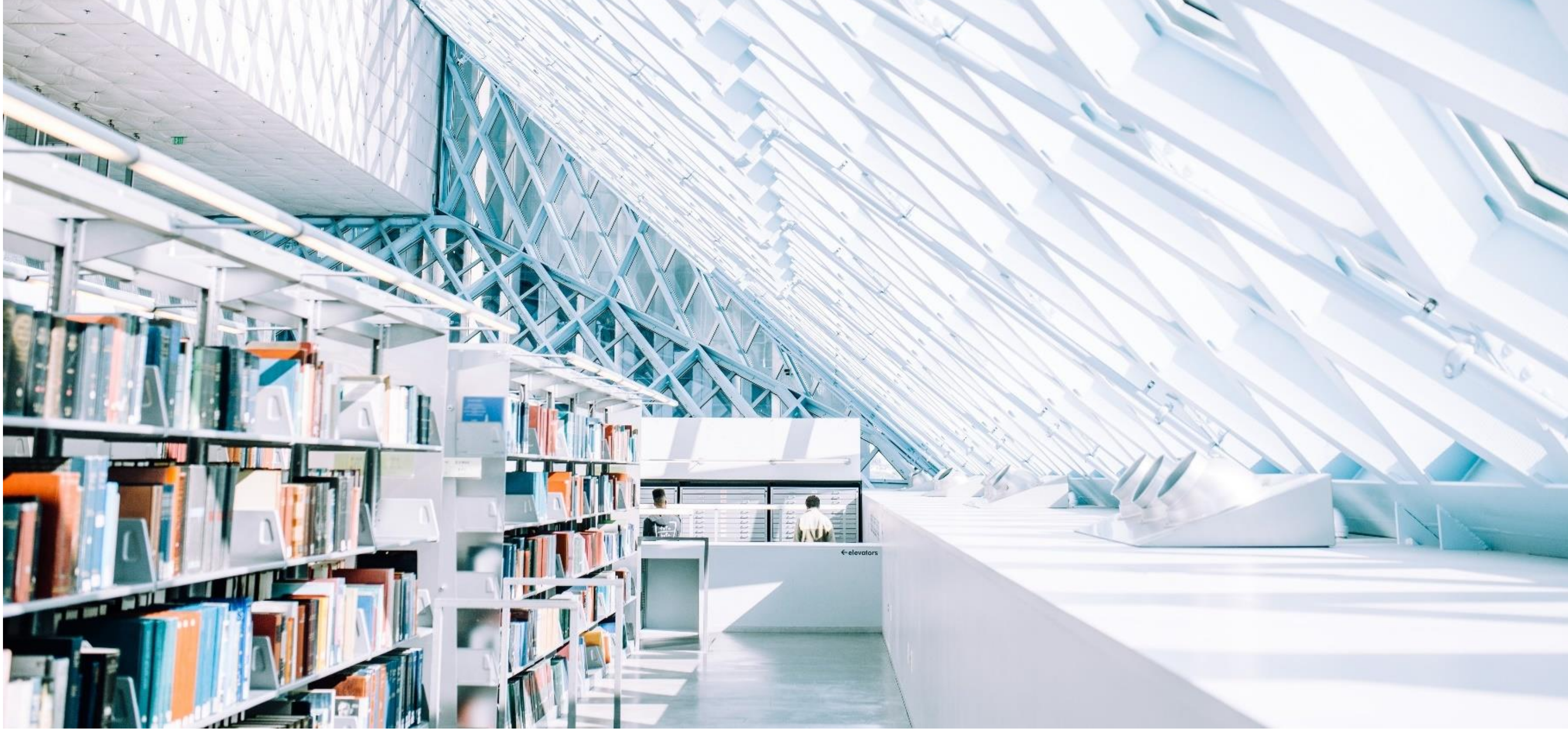
CONTROL COMMAND & SIGNALLING – WORLDWIDE MARKET TRENDS

Developments, Volumes, Projects, Players

2023



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CONTROL COMMAND & SIGNALLING – WORLDWIDE MARKET TRENDS

Developments, Volumes, Projects, Players

Cologne, January 2024

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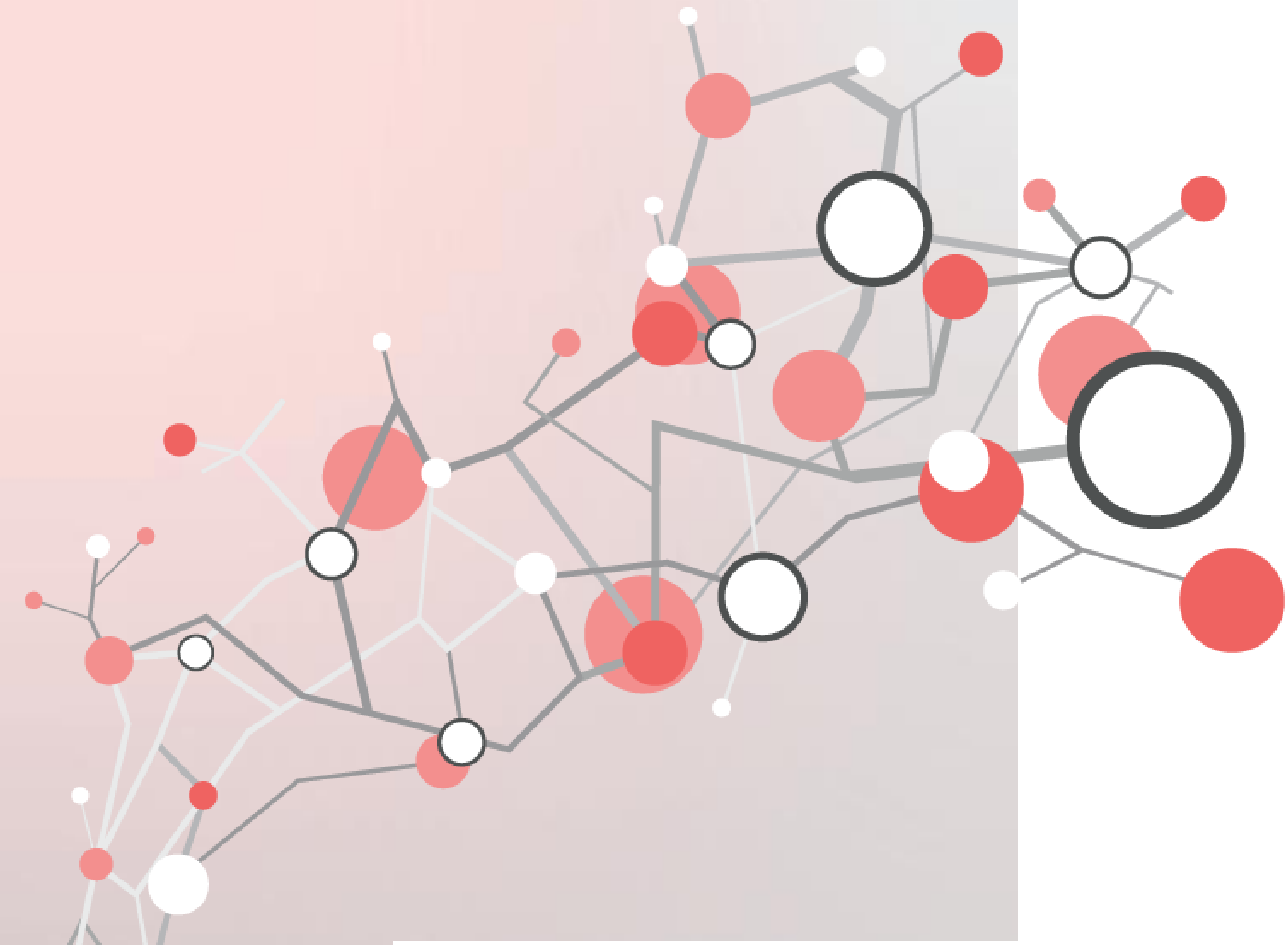


1 Executive summary

Executive Summary

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.

The average global CCS market volume for 2023 amounts to almost EUR 19.3 billion and is expected to increase by a CAGR of 4.6% through 2028. Renewal and maintenance accounts for most of the market volume (XX%). This is mainly based on the fact that CCS systems across existing infrastructure must be regularly maintained and renewed to keep trains moving safely. But the market for new development and upgrade is gaining in importance as it is growing at a higher CAGR than the market for maintenance and renewal (XX% vs. XX%).
(…)

Total average CCS market volume world 2023

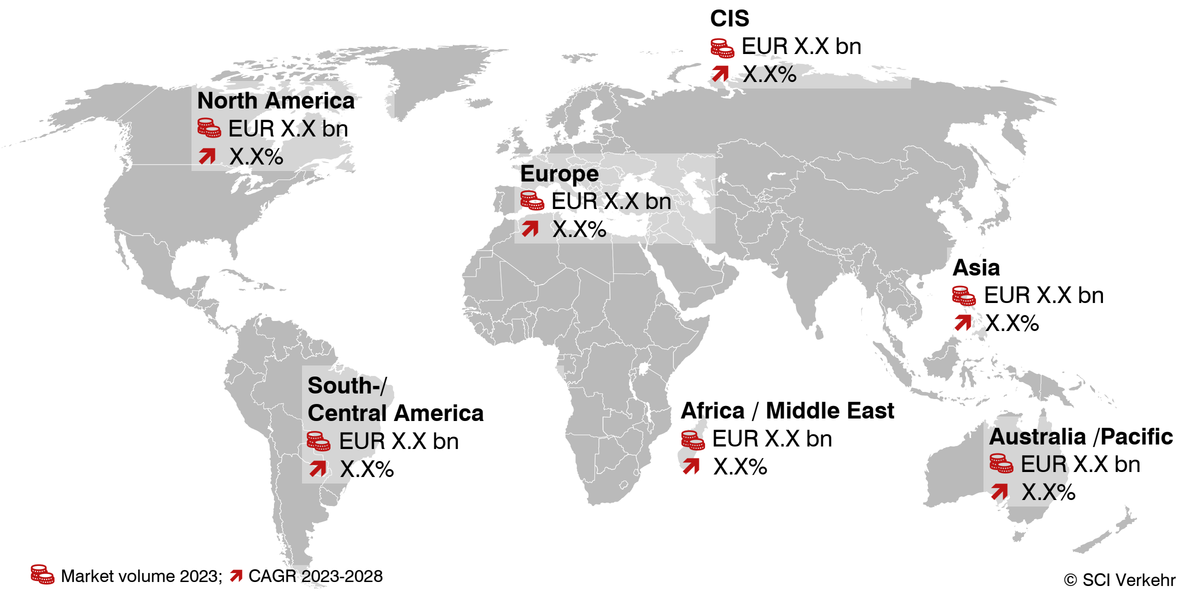


Figure 1: Total average CCS market volume world 2023
Data table (additional offer): 1.1 Market volume overview; 1.2 Market volume by product group; 1.3 Market volume by transport mode; 1.4 Market volume by investment target

Europe (…)

Regarding investment targets, we see a slightly changing pattern for **Asia**: (…)

Africa / **Middle East** (…)

XX is the most important CCS product group.

It accounts for more than **XX% of the total market volume**

The **CIS** region (…)

(…) is the most important CCS product group. It accounts for more than XX% of the total market volume. Among other things, this reflects (…)

(…) is the most important transport mode – at the global level, as well as in all regions and core countries. Nevertheless, its relative importance varies sharply from region to region.
(…)

Market volume split and market development	Average market volume 2023 [EUR million p.a.]	CAGR 2023-2028 [% p.a.]
By product group		
Train control systems	XX	+X.X
Electronic interlocking technology	XX	+X.X
Level crossing protection systems	XX	+X.X
Operational telematics / Train communication	XX	+X.X
Other products	XX	+X.X
By transport mode		
Conventional railway (CR)	XX	+X.X
High-speed rail (HSR)	XX	+X.X
Light rail transit (LRT)	XX	+X.X
Metro (Metro)	XX	+X.X
By investment target		
New development and upgrades (OEM)	XX	+X.X
Renewal and maintenance (after-sales)	XX	+X.X
Total	**19,300**	**+4.6**

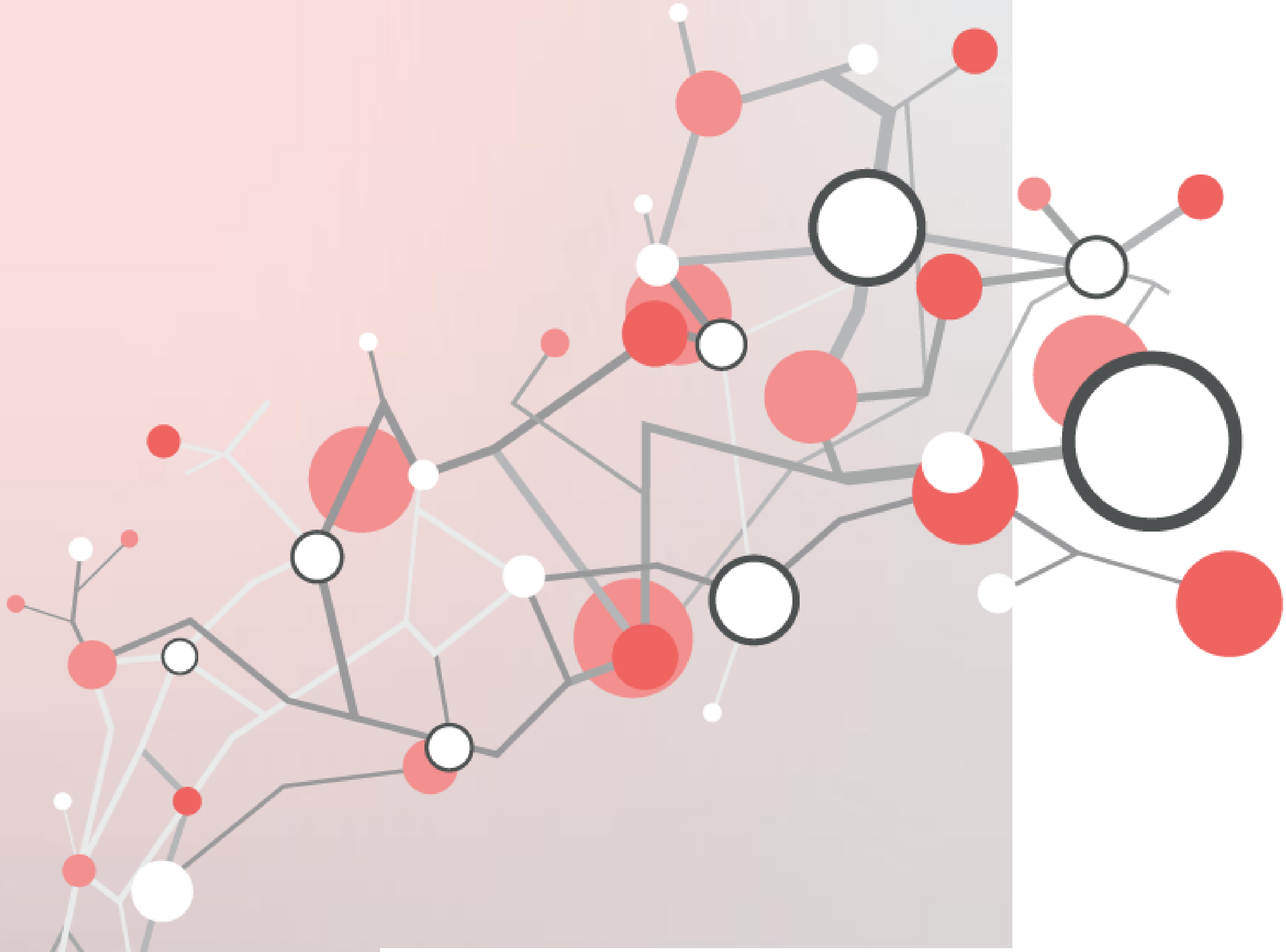
XX companies lead the world market for CCS, all originating from (…)

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.

Worldwide market shares control command and signalling –
New development and upgrade (2019-2023)

Figure 2: Market shares CCS suppliers
Data table (additional offer): 2.1. Supplier market shares

(…)



2

The market for Control Command & Signalling in: Africa / Middle East

2 Africa / Middle East

2.1 Market volume

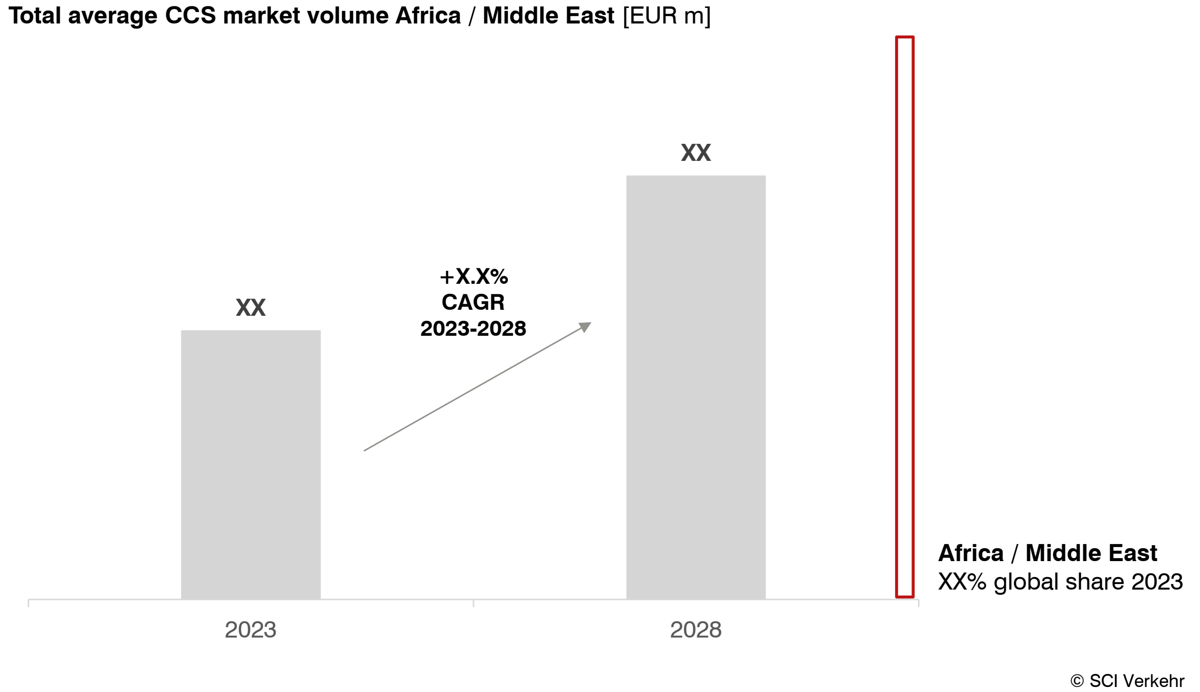


Figure 3: Total average CCS market volume Africa / Middle East
Data table (additional offer): 1.1 Market volume overview; 1.2 Market volume by product group; 1.3 Market volume by transport mode; 1.4 Market volume by investment target

Market volume split and market development	Average market volume 2023 [EUR million p.a.]	CAGR 2023-2028 [% p.a.]
By product group		
Train control systems	XX	+X.X
Electronic interlocking technology	XX	+X.X
Level crossing protection systems	XX	+X.X
Operational telematics / Train communication	XX	+X.X
Other products	XX	+X.X
By transport mode		
Conventional railway (CR)	XX	+X.X
High-speed rail (HSR)	XX	+X.X
Light rail transit (LRT)	XX	+X.X
Metro (Metro)	XX	+X.X
By investment target		
New development and upgrades (OEM)	XX	+X.X
Renewal and maintenance (after-sales)	XX	+X.X
Total	**XX**	**+X.X**
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2.2 Market environment

2.2.1 Overview

Africa / Middle East will see (…).	The market is dominated by (…).	Egypt (…).

The market region Africa / Middle East may be divided into Southern Africa and MENA due to different socio-economic framework conditions.

Southern Africa consists of many countries and the degree of heterogeneity is large. The countries in Northern Africa and the Middle East are at a similar development level, but they are rather heterogenous regarding the extent and technical state of the railway network.

Rail freight transport performance has enjoyed robust growth in Africa / Middle East since 2010.
(…)

Passenger rail transport only plays a minor role in almost all countries of Southern Africa.
(…)

(…)

(…)

The railway network in the region is characterised by different technical standards and track gauges, which limit interoperability.
(…)

Harmonisation and interoperability have been of limited interest in the past, as most lines just connected inland areas to the coast. But the construction of comprehensive railway lines and cross-border connections has created the need for harmonisation and interoperability.

(…)

The involvement of private investors is always a key factor for generating high investment sums.
(…)

In the Middle East, railway infrastructure is in a rather good shape, as many lines have only been built recently.
(…)

Most investments in Africa / Middle East are directed towards (…).

Africa / Middle East is characterised by a young and growing population. Urbanisation will increase and the growing cities will require mobility solutions.
(…)

High-speed lines (…).

2.2.2 Train control systems

Many older lines require upgrades and modernisations.
(…)

(…) Decisions regarding the implementation of new systems are made and accomplished at the national level. (…)

Several CBTC projects (…).

ETCS implementation (…)

(…)

In 2021, (…) was awarded a contract to maintain the control command and signalling (CCS) and communications equipment (…).

(…) has been quite active in the modernisation of its CCS systems, including train control systems (see also below).
(…)

(…)

2.2.3 Electronic interlocking technology / Level crossing protection systems

Modernisation of the signalling systems (…).

In addition, the signalling system has been upgraded (…)

In 2021, (…) became operational. This project also involves the upgrade of the signalling systems (…). The goal is to transform mechanical and electrical systems into electronic interlocking systems, as well as to install ATP systems (…).

(…)

(…)

In 2022, (…).

In September 2023, a contract was signed to address (…).

The safety of level crossings is a big issue in Africa and the Middle East, as the level of safety is often insufficient.
(…)

(…)

(…)

2.2.4 Operational telematics / Train communication

GSM-R installation contracts have been awarded by countries (…).

In 2023, (…) was selected to be the supplier of a GSM-R system (…). The GSM-R system will be employed on (…).

(…)

In 2023, the government (…) announced an ambitious plan for expanding the railway network. Among other things, additional tracks are planned (…). The goal is to improve capacity, reliability and operating efficiency.

(…)

2.3 Market structure

2.3.1 Main suppliers

Market shares control command and signalling – Africa and Middle East
New development and upgrade (2019-2023)

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Figure 4: Market shares CCS suppliers Africa / Middle East
Data table (additional offer): 2.1 Supplier market shares

Africa / Middle East has traditionally been a profitable market region for contractors and turnkey suppliers. These often contribute the technologies from their domestic markets.

Construction services are provided (…).

Global players share the market for control command and signalling in Africa / Middle East. However, the region is very heterogeneous.
(…)

Alstom (…)

CRSC (…)

Hitachi Rail (…)

Siemens (…)

Thales (…)

2.3.2 Important projects

Important new development and upgrade projects (excl. core markets):

Project title	Country	Transport mode	Status	New route [km]	Upgrade [km]	Start of construction	Completion
XX	XX	CR	Construction	XX	XX	2022	2025
XX	XX	CR	Construction	XX	XX	2022	2025
XX	XX	CR	Construction	XX	XX	2022	2025
XX	XX	CR	Construction	XX	XX	2022	2025
XX	XX	CR	Construction	XX	XX	2022	2025
XX	XX	CR	Planning	XX	XX	2024	2026
XX	XX	CR	Planning	XX	XX	2024	2027
XX	XX	CR	Planning	XX	XX	2028	2030
XX	XX	CR	Construction	XX	XX	2017	2024
XX	XX	CR	Construction	XX	XX	2015	2025
XX	XX	CR	Construction	XX	XX	2020	2025
XX	XX	CR	Construction	XX	XX	2021	2026
XX	XX	LRT	Construction	XX	XX	2021	2026
XX	XX	Metro	Construction	XX	XX	2018	2026
XX	XX	Metro	Construction	XX	XX	2020	2029
XX	XX	CR	Construction	XX	XX	2022	2030

Project title	Country	Transport mode	Status	New route [km]	Upgrade [km]	Start of construction	Completion
XX	XX	LRT	Construction	XX	XX	2020	2030
XX	XX	HSR	Planning	XX	XX	2025	2032
XX	XX	Metro	Planning	XX	XX	2026	2032
XX	XX	LRT	Planning	XX	XX	2025	2037

Data table (additional offer): 3.1 Important projects