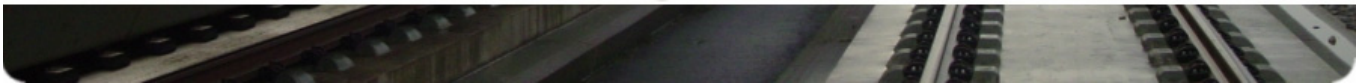




ALSTOM

SIEMENS

THALES



## ERTMS Independent and reliable services

### Installation - Commissioning - Maintenance

As a Europe wide full-service provider of rail systems, Strukton Rail has considerable in-house experience in installing and maintaining ERTMS. Remarkable is that we work on both way-side and on-board equipment. Strukton Rail cooperates with most suppliers in several projects, thus contributing to the future interoperable European Rail Network as an independent system integrator.

#### Installation

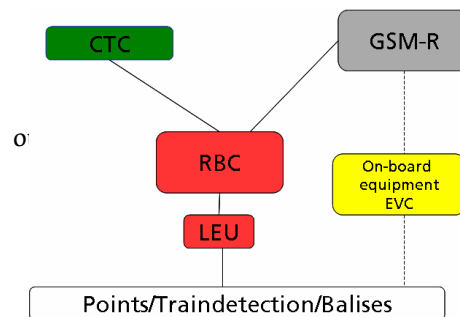
Strukton Rail has installed the ERTMS systems in the following projects:

- The 150 km long Betuwe Route in the Netherlands. This newly built dedicated freight line forms the Dutch part of the freight corridor A from Rotterdam to Genoa. The line is equipped with ERTMS level 2
- The 40 km long Harbour Line in Rotterdam. This line connects to the Betuwe Route and is equipped with ERTMS level 1
- The 40 km long 4-track mixed traffic line from Amsterdam to Utrecht. This line has a dual signalling system, allowing conventional trains and level 2 equipped trains

#### Commissioning

Strukton Rail performs the field tests during the commissioning phase. We also provide the health and safety organisation. For testing the tracks with locomotives, we have an enthusiastic team of experienced ERTMS test drivers available.

#### Maintenance



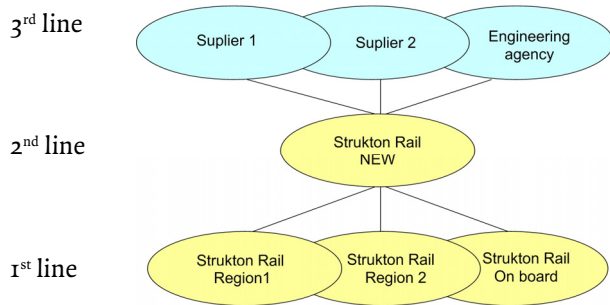
The deployment of ERTMS will have a serious impact on the maintenance process of the railway providers and the carriers. Strukton Rail's pro-active attitude guarantees a smooth migration from the conventional signalling to ERTMS. The on-board equipment, the RBC, the neighbouring RBC and the GSM-R might all be from different suppliers (see all different colours in the ERTMS lay-out). It is a great advantage for maintenance that Strukton Rail is independent from these suppliers.



**Strukton**  
Rail

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## Maintenance organisation



The maintenance of rail infrastructure is performed on the basis of the client's quality levels. The regional setup of the fault teams is the same for both ERTMS and conventional signalling. New for ERTMS is the second-line team of highly skilled electronic engineers. They monitor all systems remotely and assist the first-line when necessary. They can assist on location if required. The supplier is responsible for spare part repair, assistance in case of software problems and training of the second-line team.

## Monitoring

Strukton is the largest asset monitoring supplier in Europe. Our POSS system is used for monitoring over 2,000 points in various countries. We adapted the POSS concept for ERTMS maintenance in such a way that the entire ERTMS chain can be monitored. This will simplify the work of the fault teams considerably.

