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IRSC-2017, Hong Kong

“Safety precautions for urgent maintenance works or repair works on the railway infrastructure during train operations by using modern IoT / wireless solutions in the field”



27th International Railway Safety Council 2017
Hong Kong, October 22-27, 2017 By: Alex W.M. Ruiters BSc.



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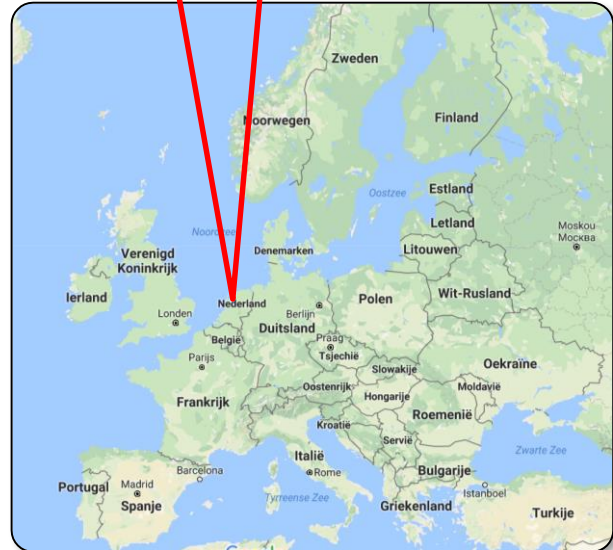
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Amsterdam City

Amsterdam Rail Map



Location: Amsterdam
The Netherlands





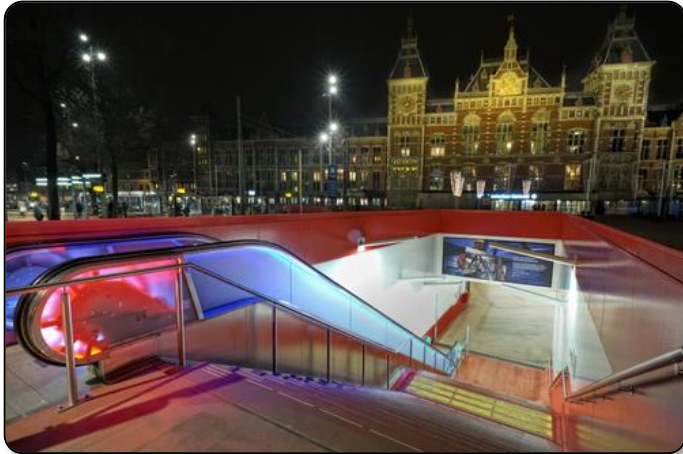
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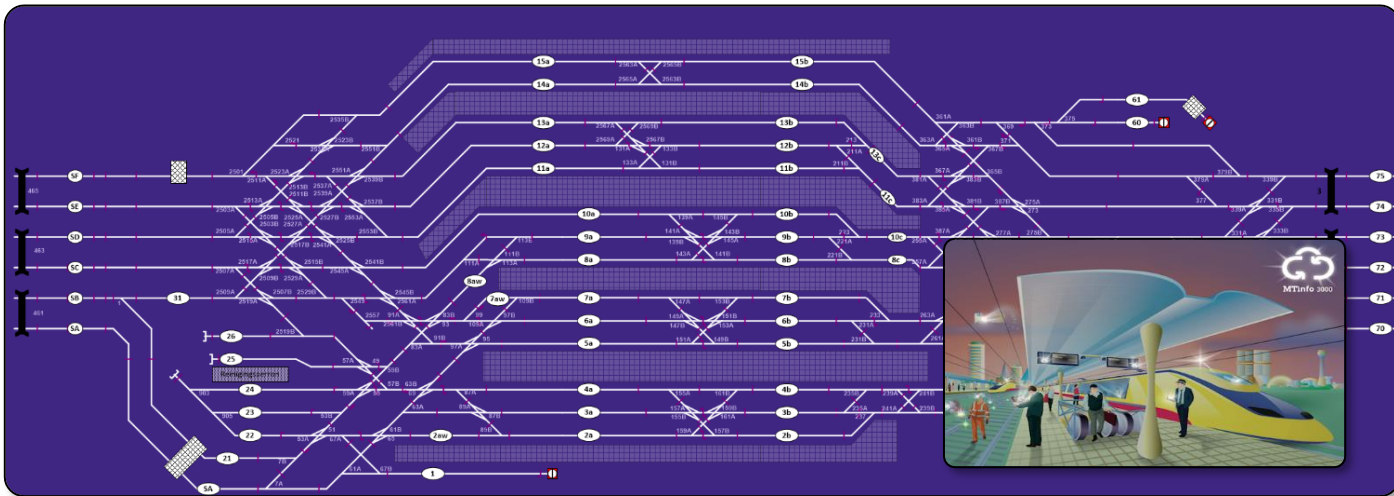
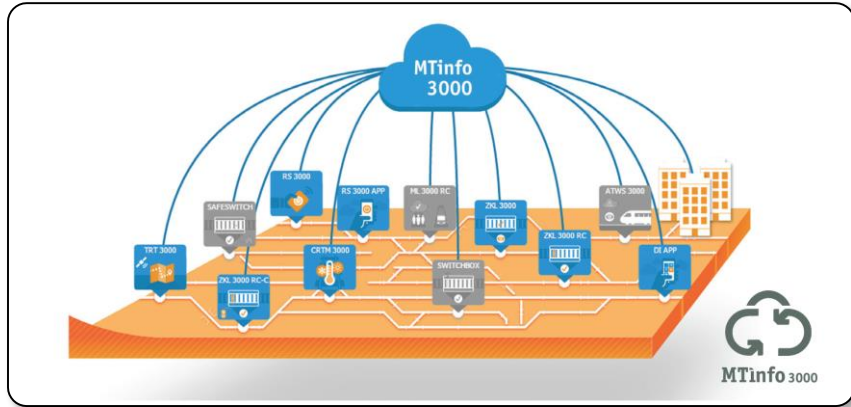
A'dam Central Station



Architect: P.J.H. Cuypers
October 1889



MTInfo 3000 is the secure IoT platform for rail infrastructure and railway stations in The Netherlands





- Availability of IoT platform MTinfo 3000
- 205 central operated points
- 12 miles railway tracks
- 10 miles railway catenary
- 200 track sections
- Downtime cost impact ca. \$ 65,000 / hour



- Our Client reduced the maintenance time slots during night shifts from 5,5 hrs. → 4 hrs.
- Maintain safety
- Maintain field productions





- Guarantee safe working environment towards our mechanics / rail workers in the field
- Achieve production according Client's targets
- Limit disturbance train operations



Cables vs Wireless



“Cables causing headache”

“too expensive”

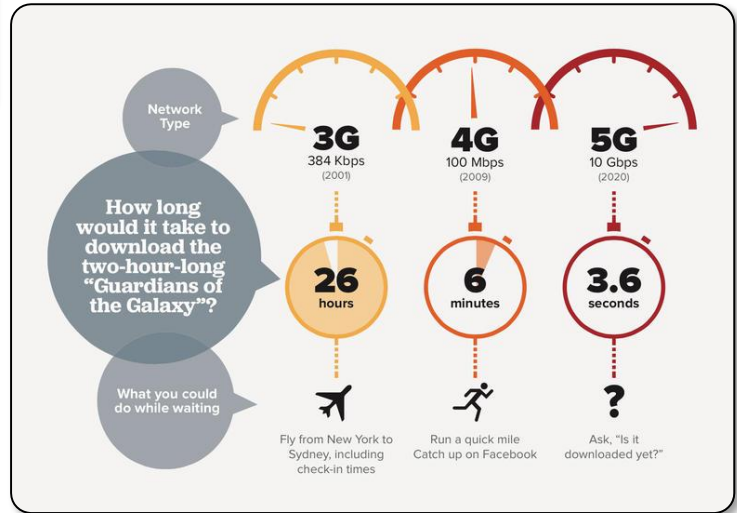
“too many failures”

“Robust”

“Fast”

“Wireless”

“Focus”





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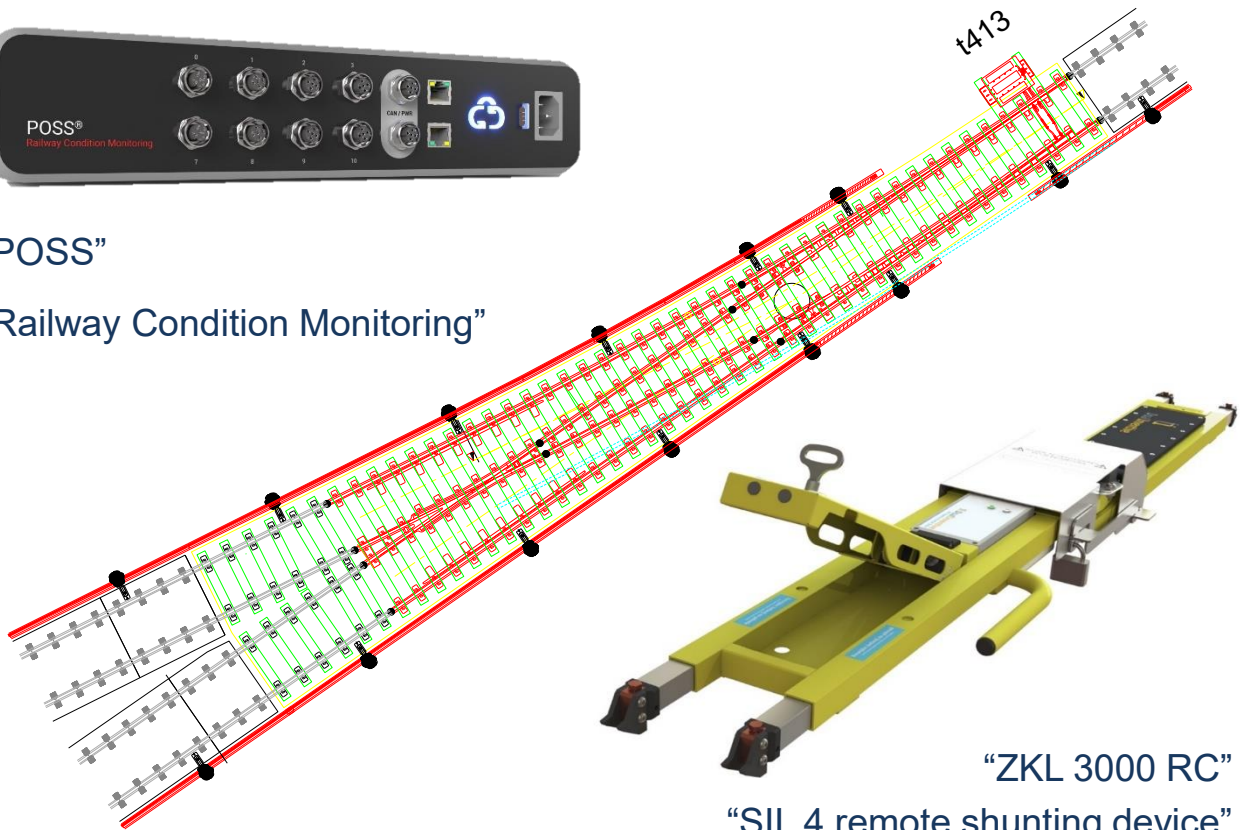
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Our solutions



“POSS”

“Railway Condition Monitoring”



“ZKL 3000 RC”
“SIL 4 remote shunting device”

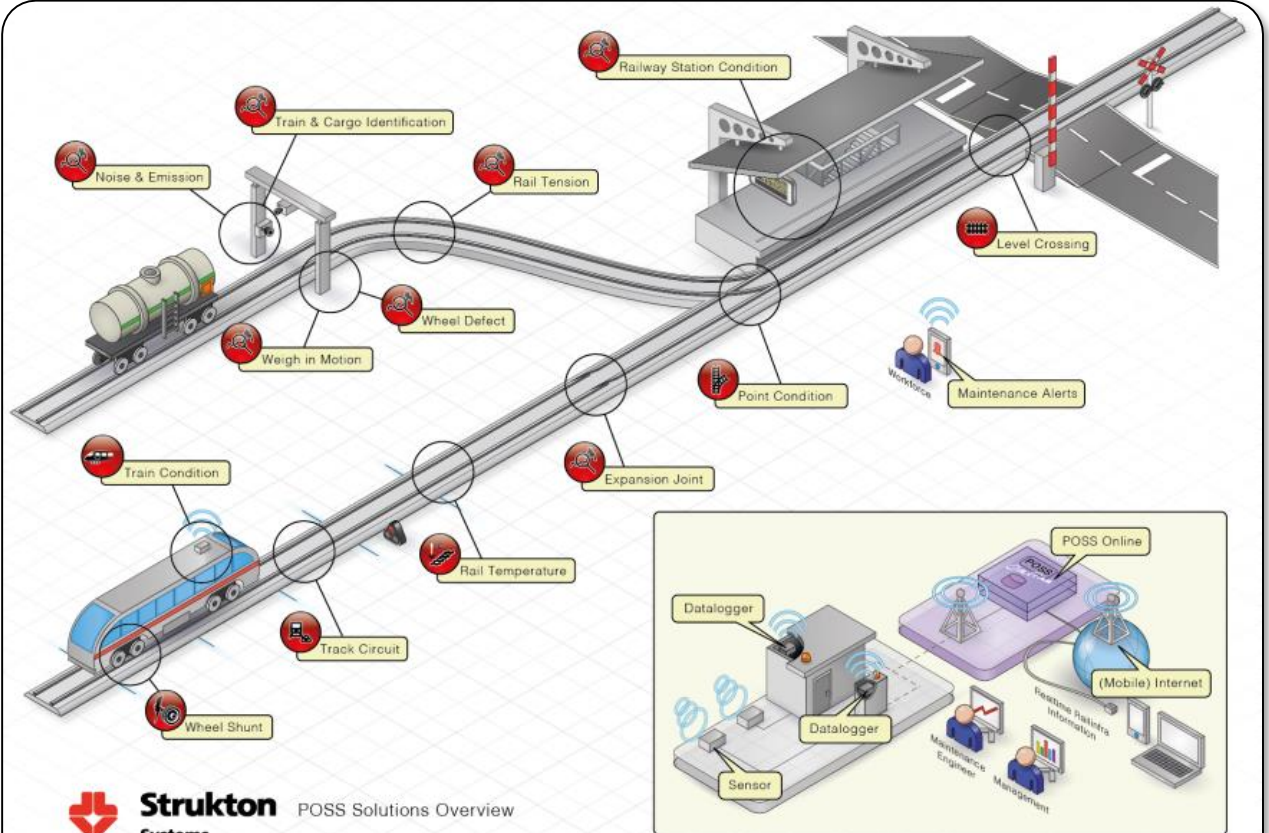


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POSS® implementation

“POSS® is the Dutch abbreviation of Strukton’s Preventive Maintenance and Fault Diagnosis System.”



Strukton
Systems

POSS Solutions Overview



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IoT implementation

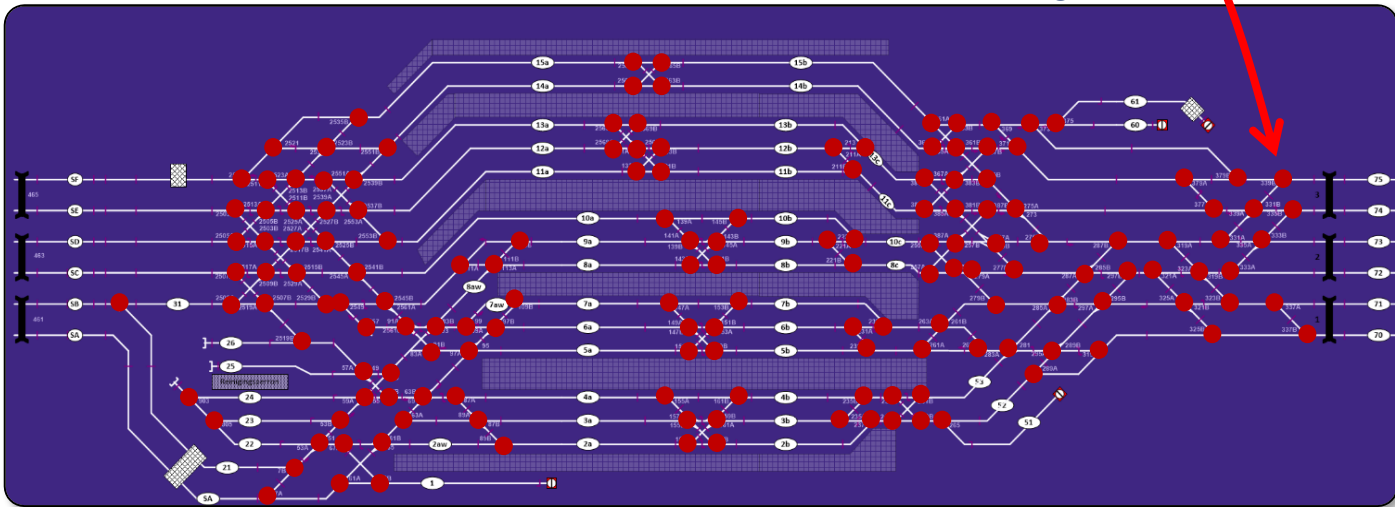
Wireless sensors



Current clamp



Rail switches equipped with POSS monitoring (205 nos)





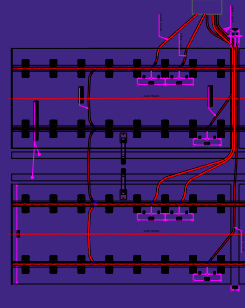
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Asset Management



Improve algorithms



**POSS monitoring
2 weeks in advance**



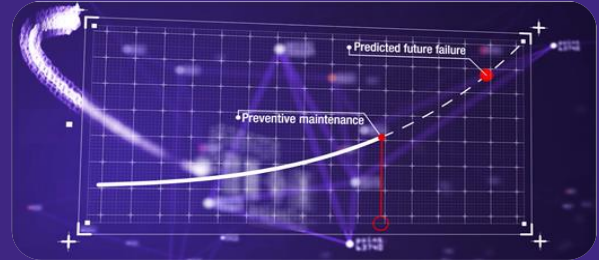
Report repairs / maintenance



Planned work



Improve algorithms



Continuous monitoring



Report repairs / maintenance



Execution maintenance works



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Asset Management



Improve alg



s monitoring



Report repairs / maintenance



Execution maintenance works



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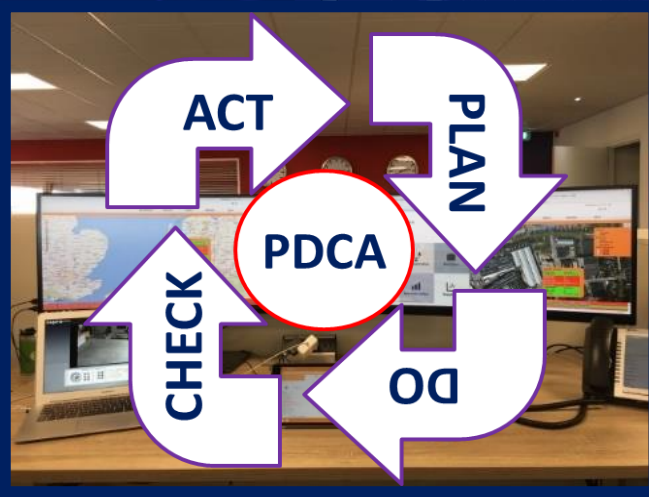
Asset Management

Improve alg

s monitoring

Report repairs / maintenance

Execution maintenance works

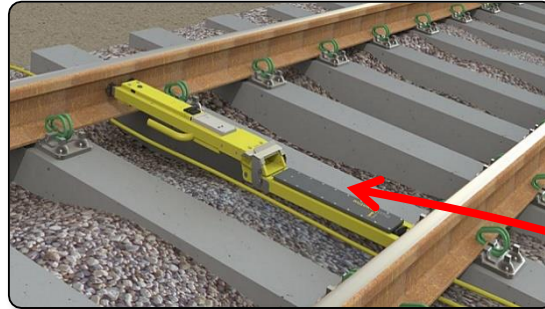




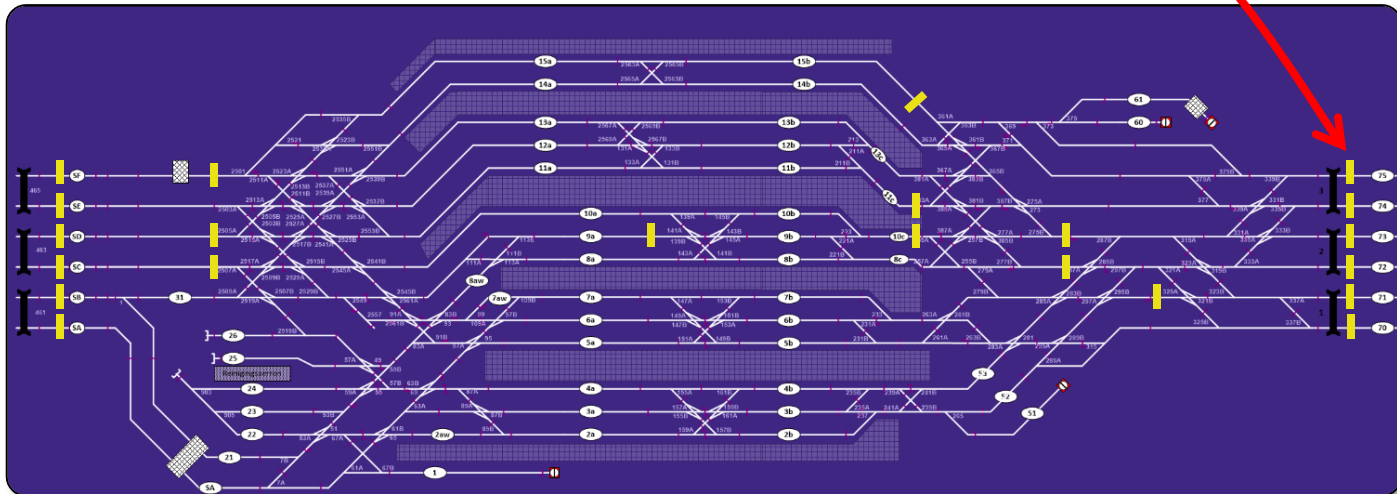
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IoT implementation



Installation ZKL3000 RC (22 nos)

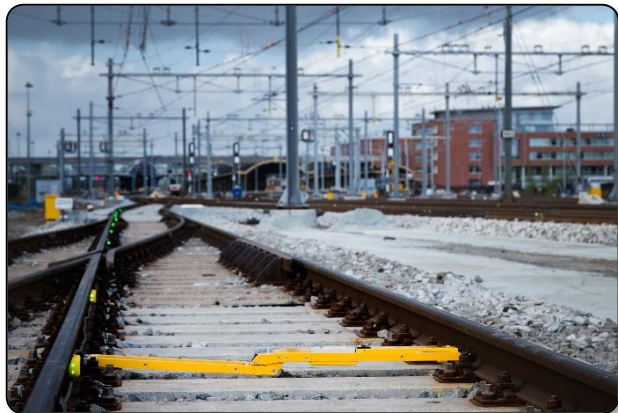




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Maintenance Works

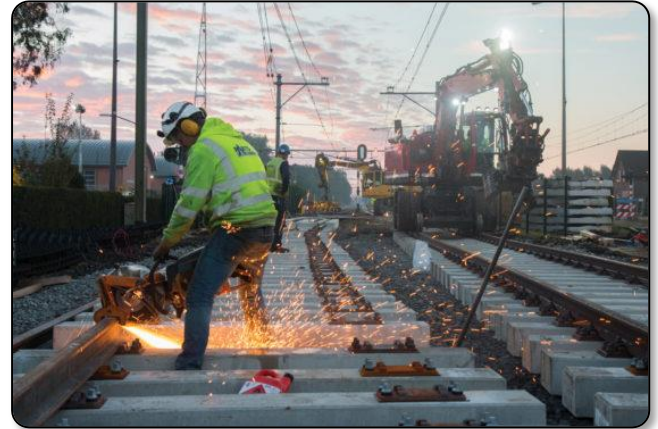




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Maintenance Works





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Achievements

- Zero worker fatalities
- Zero collisions
- 0% risk of safety mistakes
- 30% reduction of point failures
- 5720 less times in Operational track
- Gained 500 hours extra availability
- Ca. \$ 30 mio savings





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Digital vs Mechanical

Digital technology IoT / wireless has the future !

Instant safety information
via connected helmet

27°C
RAIL TEMP.

35°C
RAIL TEMP.

POSS⁺
Secure (NB)IoT-Platform for Rail

MTinfo 3000
ASSET MANAGEMENT

The Secure (NB)IoT-platform for Rail



Thank you very much for your kind attention.