

APTA Rail Conference

Smart Maintenance



Technology as the only way forward

Ellen Linnenkamp
Denver, June 12, 2018





Key figures

Revenue

- Strukton: 2.1 billion dollars
- Strukton Rail: 1 billion dollars

Number of employees

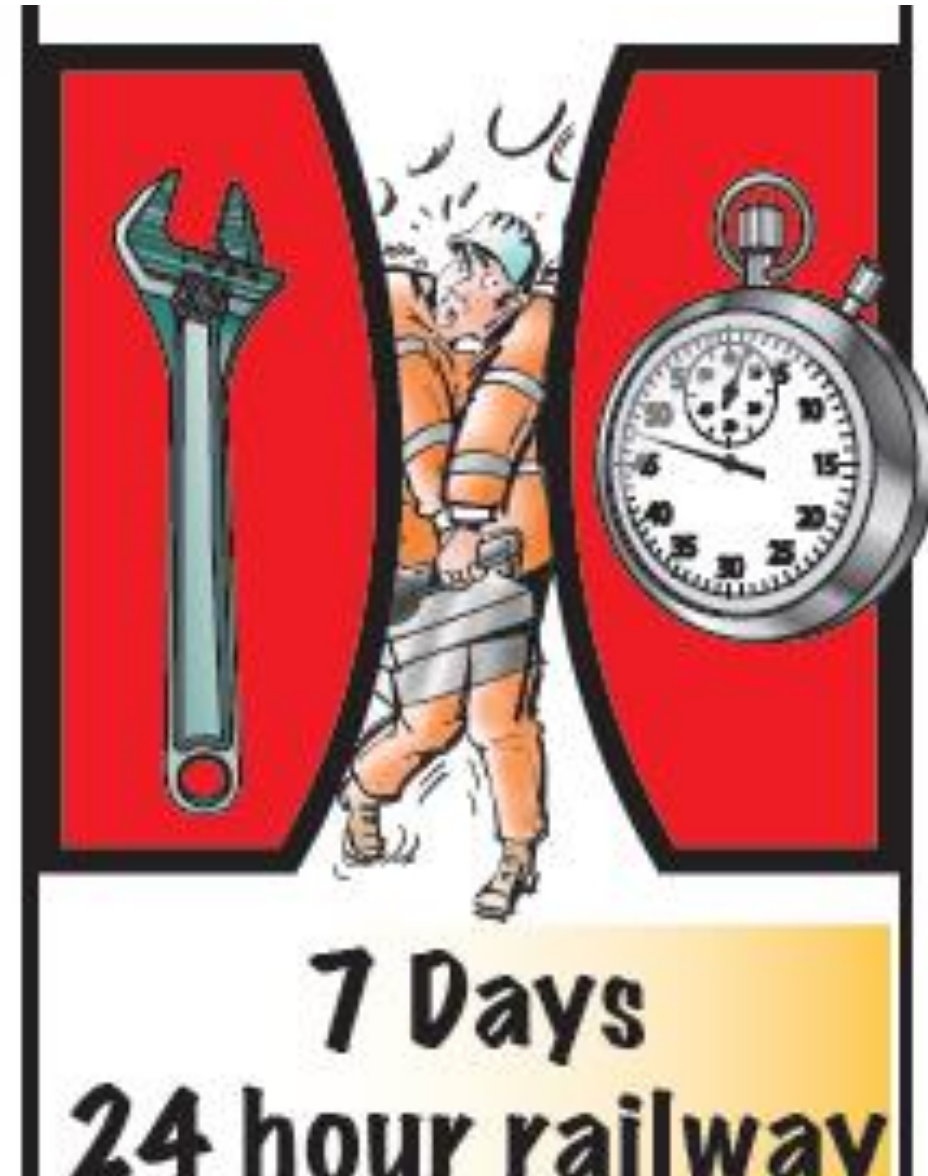
- Strukton: 6,500
- Strukton Rail: 3,500

Home countries

- Sweden, Denmark, the Netherlands, Belgium, Italy
- Australia, United States

What is our challenge?

- Busy networks
- Switches most critical
- Intensive use/ operations
- Short time frames for maintenance
- Brain Drain of Expertise
- Limited budgets



What is our goal?



What is the answer?



- Engineering specs
- Rail Operating Plan (MGTA)
- Train Operations (time table)



- Visual Inspection
- Ultrasonic Flaw Detection
- Geometry Measurement
- Surface Crack Detection



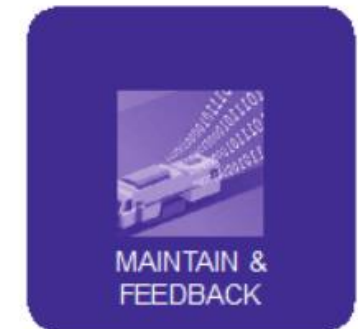
- GIS
- SAP linear module
- Excel



- Maximo
- RAMSYS
- IRISSYS
- Predictive algorithms



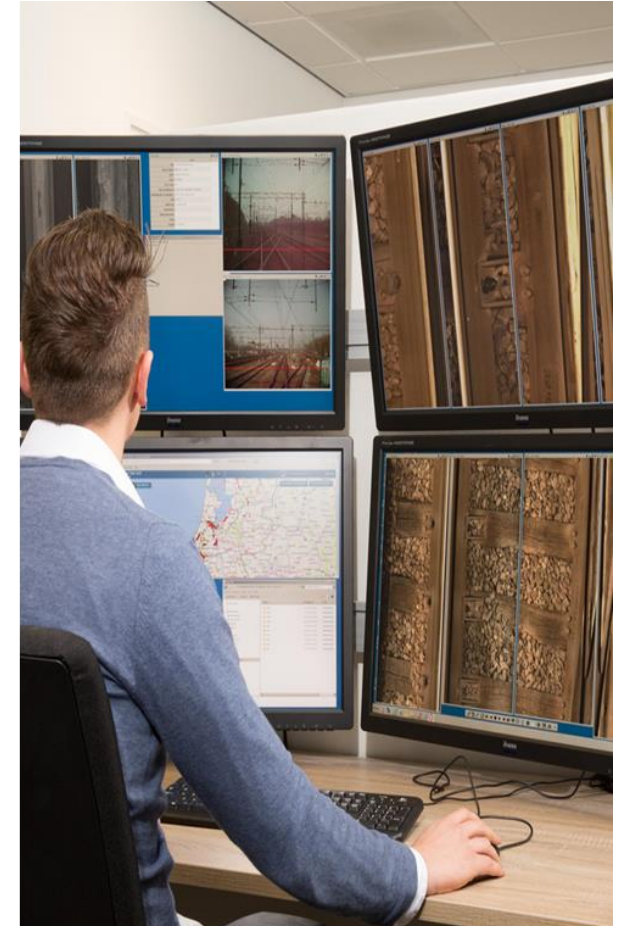
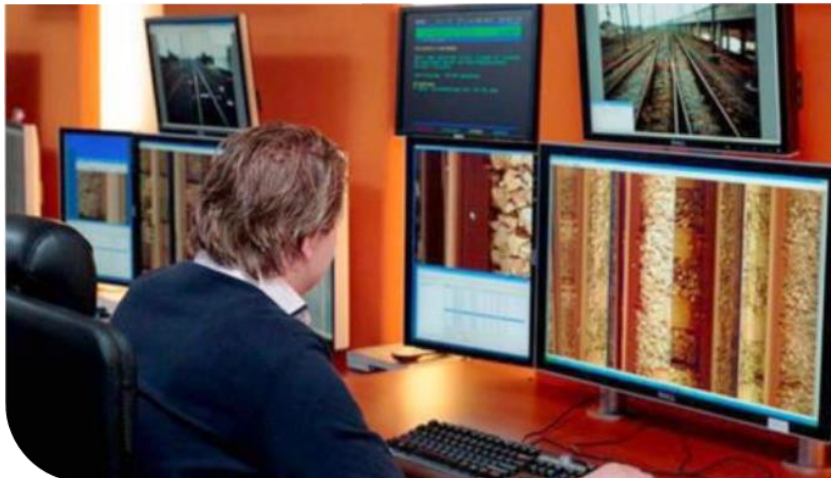
- Long Term Planning
- SAP
- Workflows
- SOG




- Rail Plant & Equipment
- Maintenance Teams
- Work Order Execution
- Work Order Feedback
- Safety Management

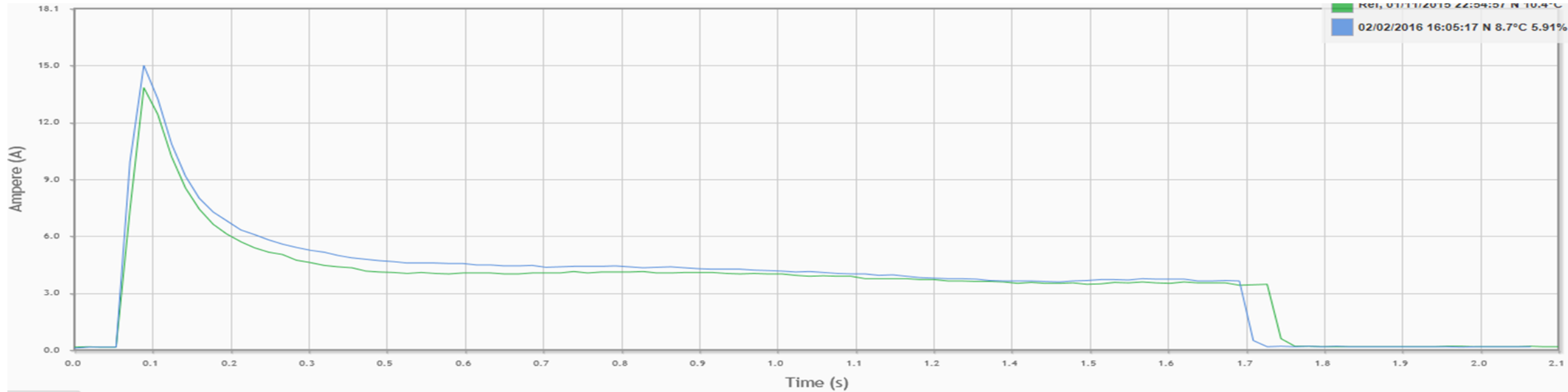
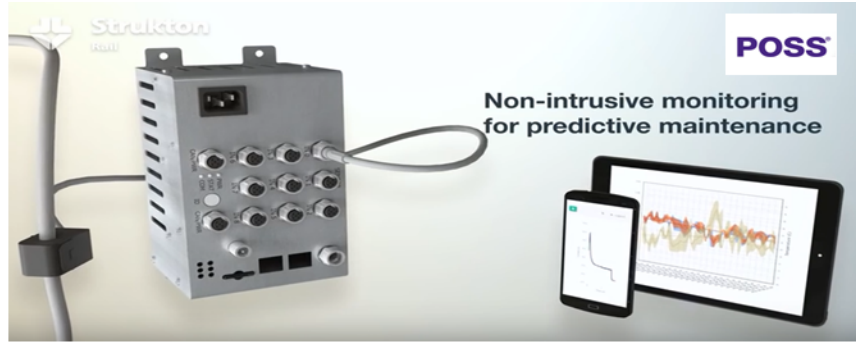


**MEASURE
&
MONITOR**





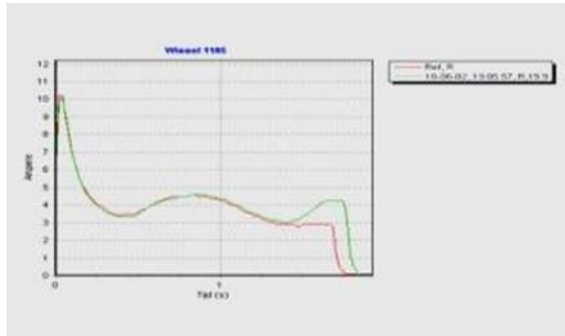
**MEASURE
&
MONITOR**



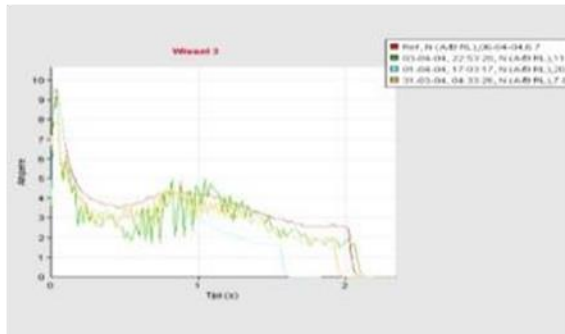


Malfunction diagnosis

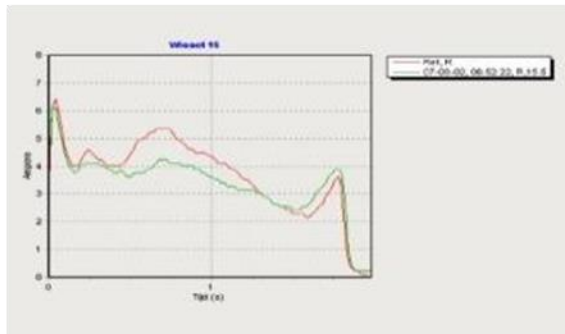
- Forced open point



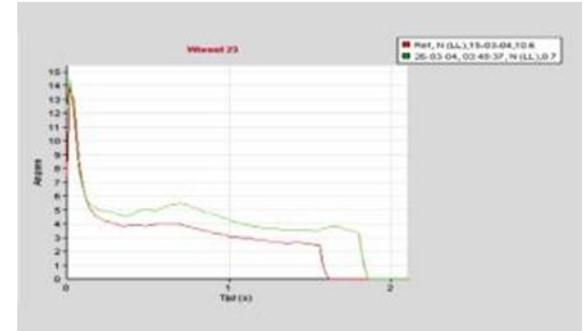
- Worn out motor brushes



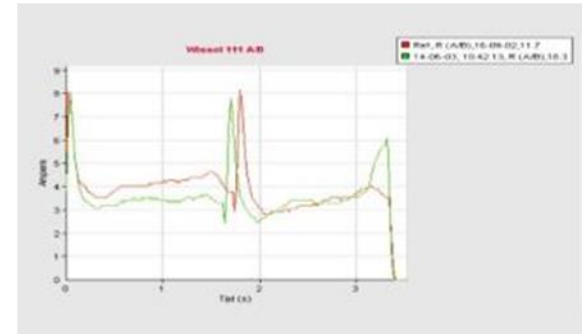
- Point at end of life cycle



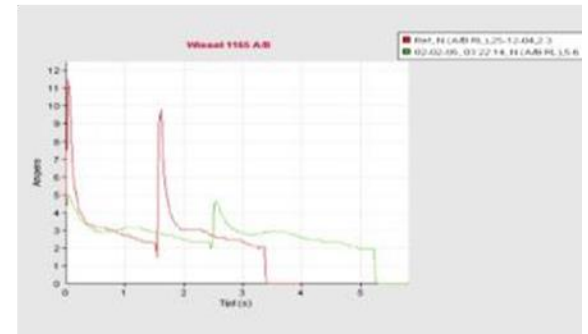
- Jammed slide chair in the heel



- Potential locking problem



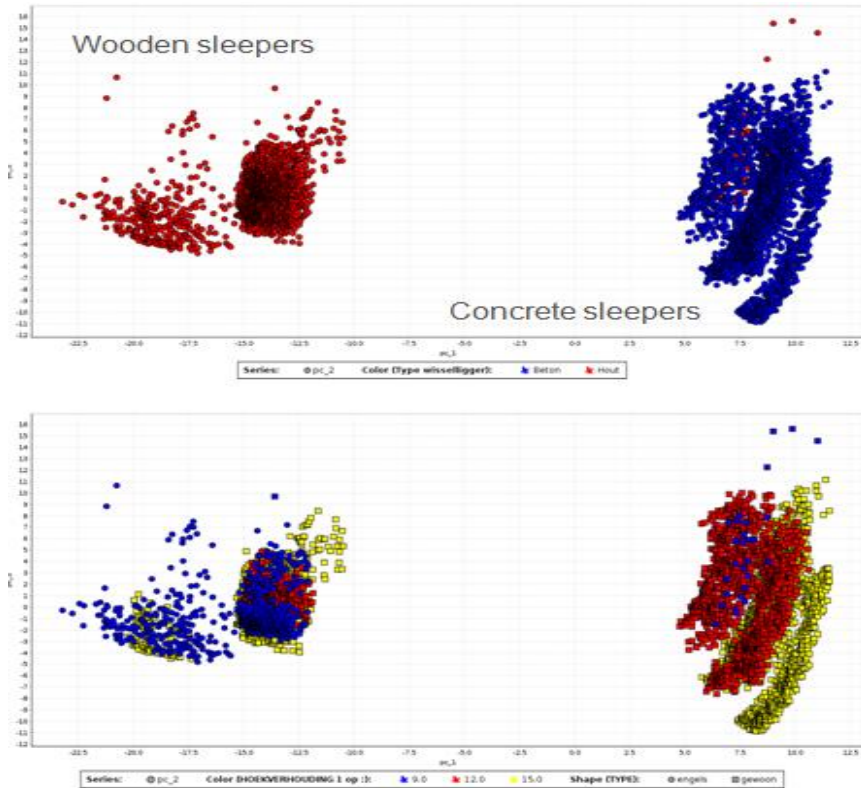
- High electrical resistance in motor circuit



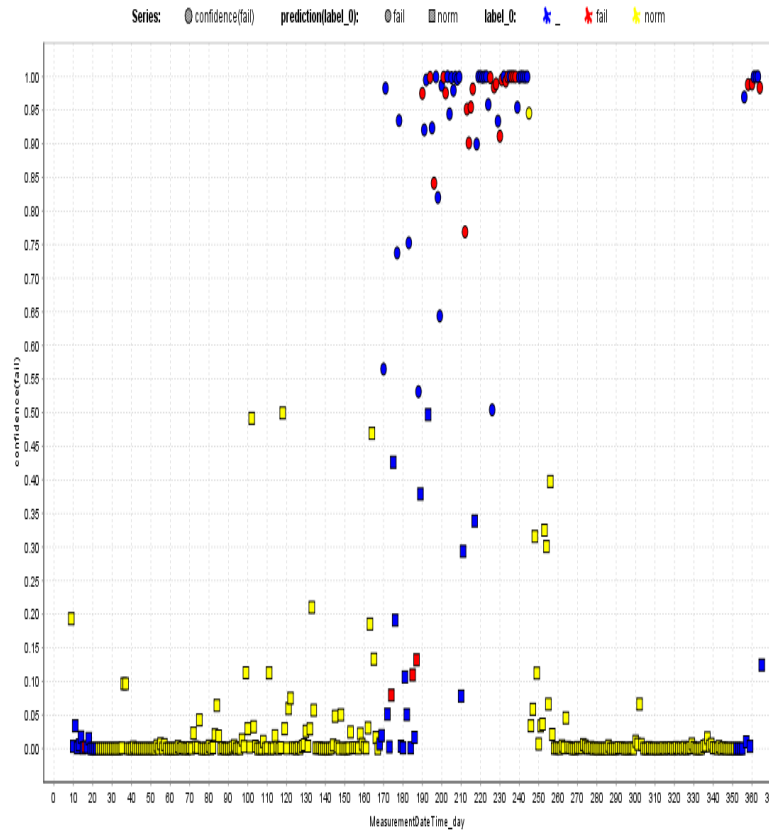


Malfunction prediction

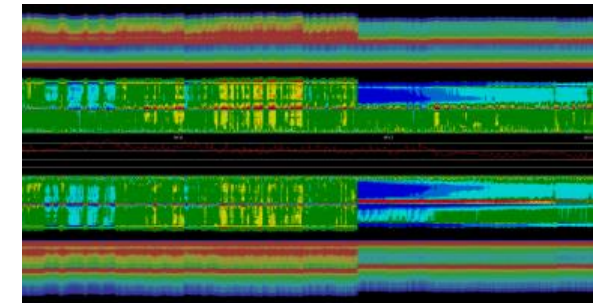
2015

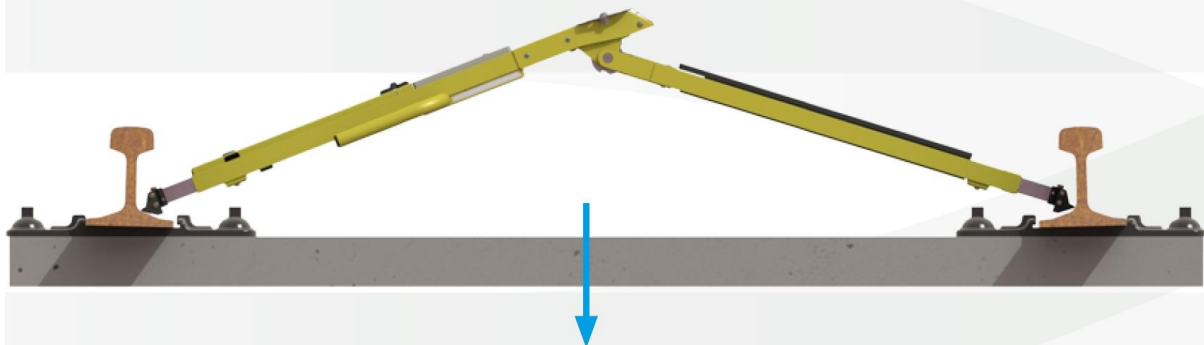


2016



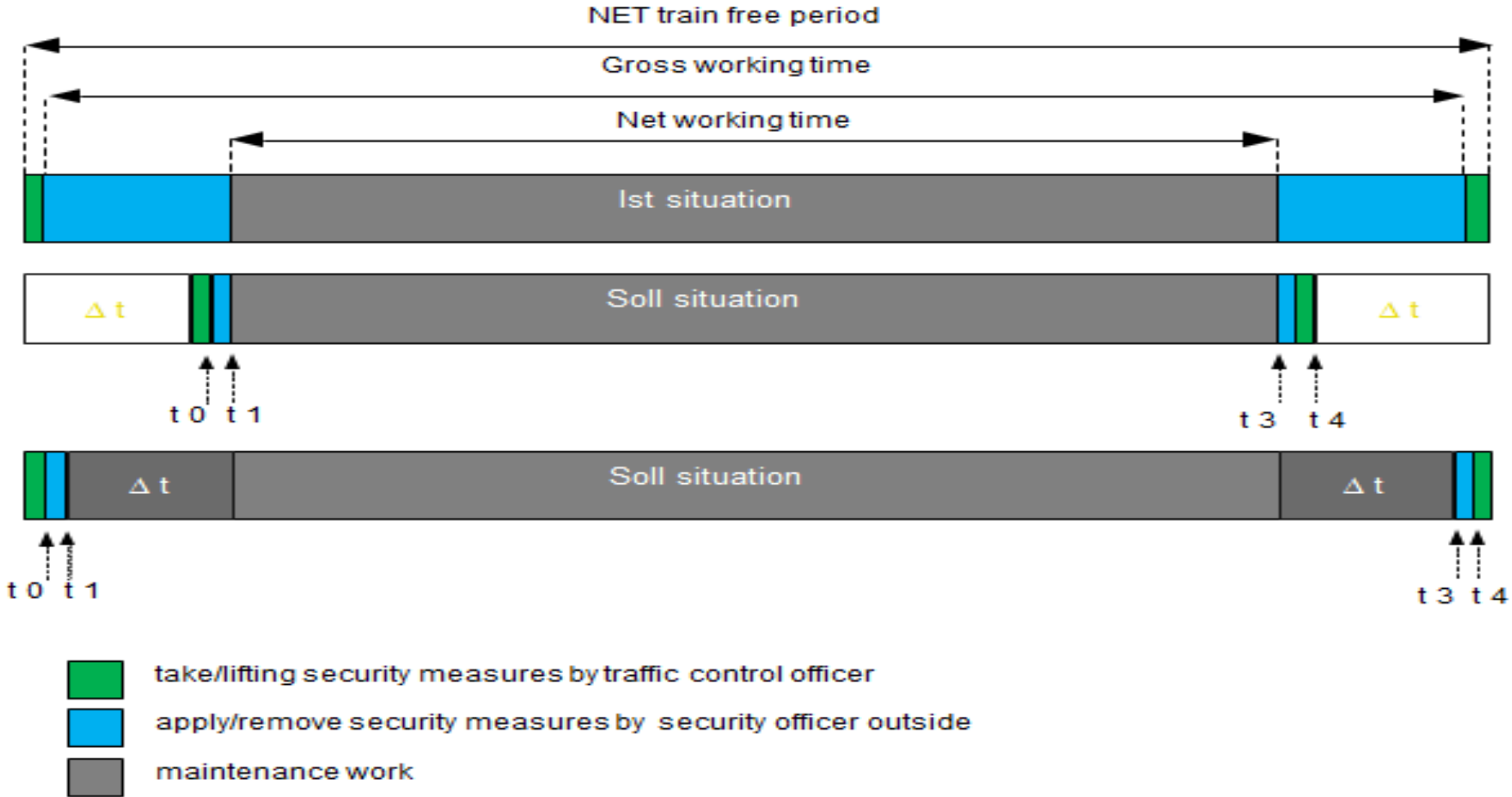
2017





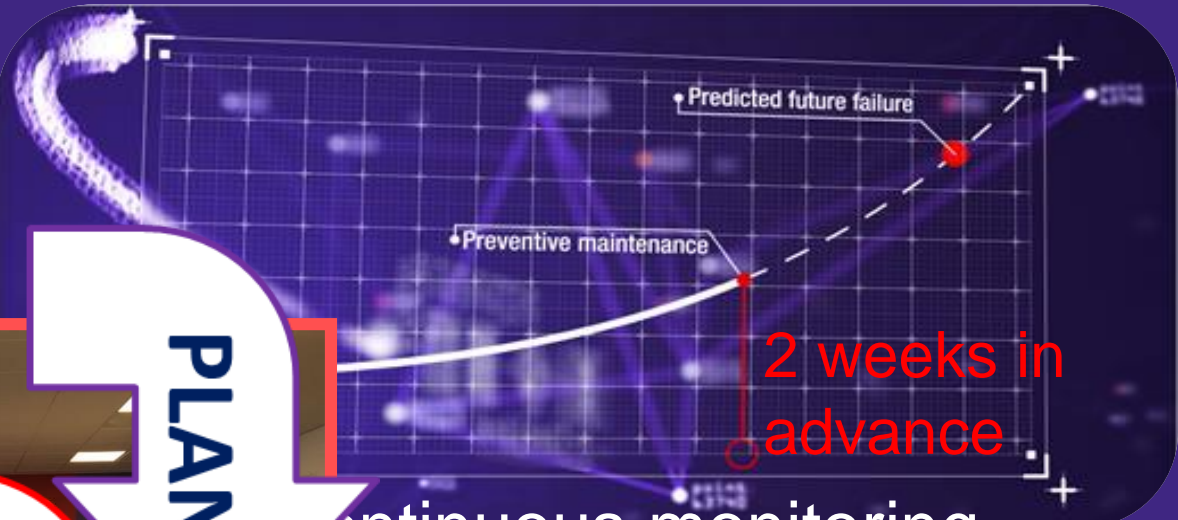


Work safer and more efficient

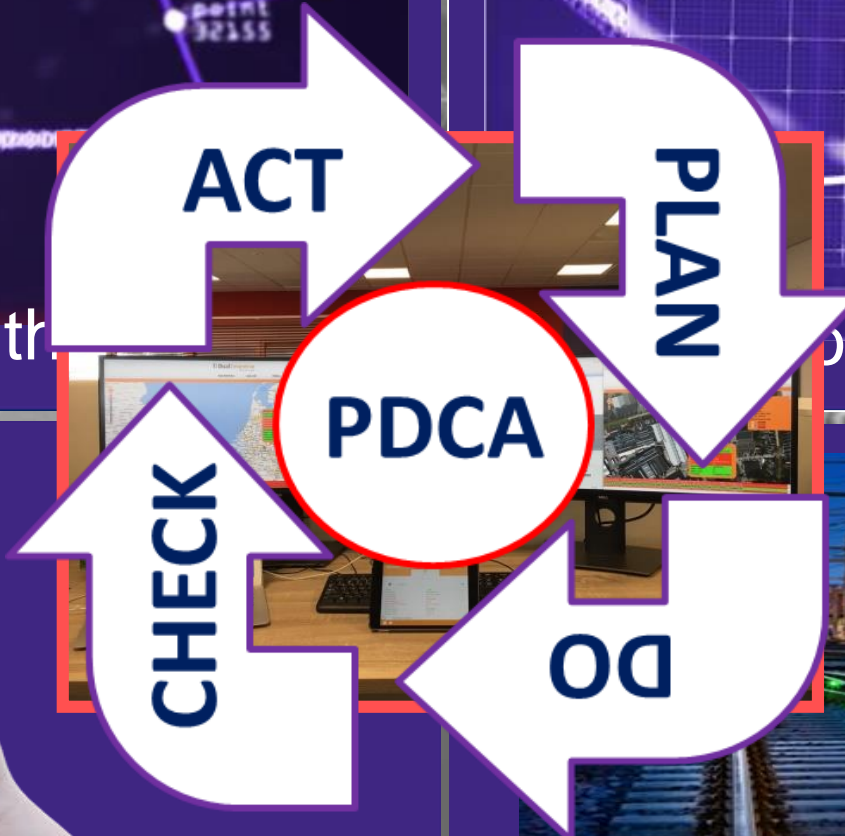




Improve algorithm



Continuous monitoring



Report repairs/maintenance



Planned work

Take aways

- Reduce failures impacting train service (preventive maintenance)
- Reduce contact moments with assets (safety)
- Increase efficiency in maintenance processes by reducing contact moments with assets (planned maintenance)
- Detailed insight in performance of assets and correlate them with similar types in other geographical areas (analysis + predictive)
- Reduce e.g. point failures by up to 30% (results)





Results

- Exposure of staff to trains reduced with 50%
- No collisions with workers since 2006
- Improvement of reliability of rail network
- 30% reduction in total daily maintenance costs
- 70% reduction in number of track geometry defects
- Up to 75% less costs on switches

Thank you!

Questions?

Email: ellen.linnenkamp@strukton.com

Phone: +1 901 254 7758



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