



MLT (Medium term) process

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ProRail

MLT: Why & Purpose



Why developing MLT

- To close the gap between yearly timetable and long-term development studies
- Train operators/concessions using the same infrastructure, making growth in network capacity a complex puzzle
- Current infrastructure has reached its boundaries of accommodation growth.

Purpose MLT

MLT is an integrated overview of the logistic developments for the coming 2-10 years to realise the expected growth of the number of passengers and freight and thereby, being able to adjust the ProRail infrastructure in time for the logistic development.

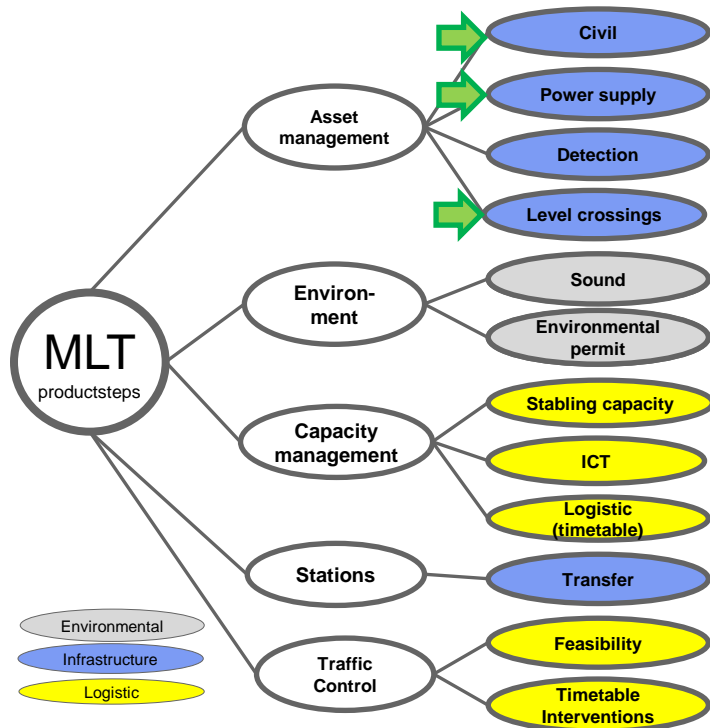
The input for the MLT of our operators exists of productsteps

A productstep is a 'new' ambition of the operators based on growth in amount of passengers or freight by train.

We identified 4 categories of productsteps :

- 1) Increase of the frequency of trains
 - Higher number of trains per hour or per day
- 2) Introduction of new traintypes
 - Difference in axle load, needed power supply, ...
- 3) Longer trains
- 4) Other, for example:
 - Driving time reduction
 - Different routing

MLT Process: ProRail performs various tests for the productsteps → to decide whether adjustments and investments are needed



MLT Product

- For each productstep, we look at whether it fits into the existing infrastructure or whether an adjustment is necessary
- If necessary, high level solutions are defined
- Required investments are indicated
- Approval of productsteps and required investments by the Ministry of Infrastructure

All different tests are examined by more than 15 experts throughout the whole organisation

Level crossings

Principle in the Netherlands:

The level of safety on level crossings on a line may not decline

This means that adjustments on level crossings might be needed when:

- The number of trains increase
- The intensity of roadtraffic increases
- The speed of trains increase
- The length of trains increases significantly
- The stopping pattern changes

Possible adjustments on the same line are:

- Improve the security level of level crossing(s)
- Separating traffic flows over level crossing(s)
- Remove one or more level crossings



Power supply

Principle in the Netherlands:

The power supply must be sufficient both during normal operation and in the event of a failure of one component of the ProRail power system

This means that adjustments on the power supply might be needed when:

- The number of trains increase
- The type of trains increase
- The speed of trains increase
- The length of trains increases significantly
- The stopping pattern changes, or other significantly timetable changes
- Changes in the lay-out of infrastructure

Possible adjustments are:

- Increase capacity between the grid (high voltage network) and ProRail power station(s)
- Increase capacity between power station(s) and overhead contact wire system and return power
- Improve the number of groups within a power station
- Improve the number power stations



Our rail embankments challenge

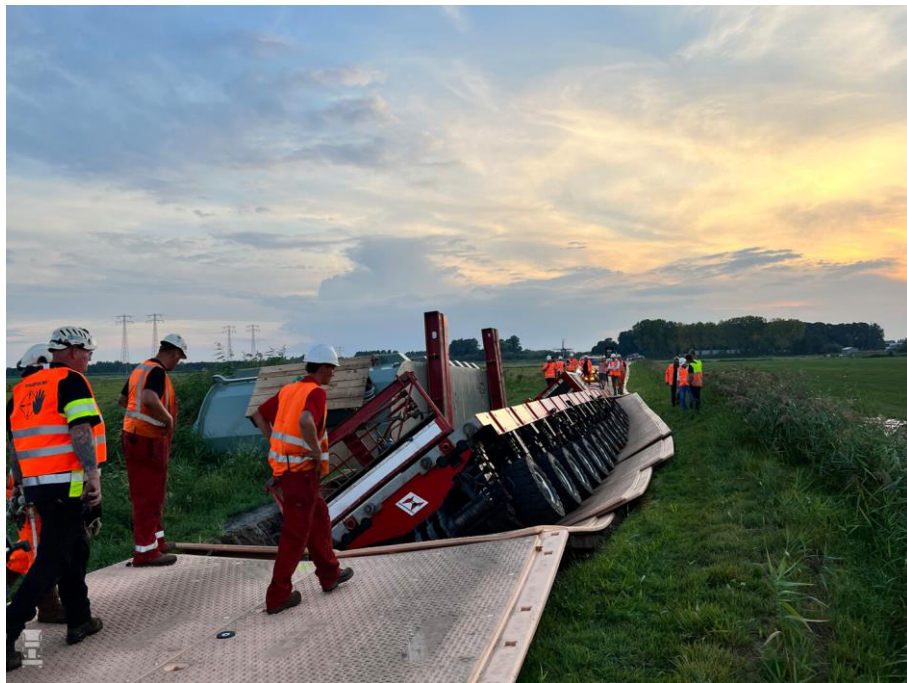


Jasper Ingram

- Asset Management / Strategy
- Program Manager "Rail Embankments"



Risks



Climate change:
More and extreme rainfall
and periods of drought

- More trains
- Heavier trains (axle load)
- Longer trains
- Faster trains

build closer to
the tracks
(e.g. noise barriers)

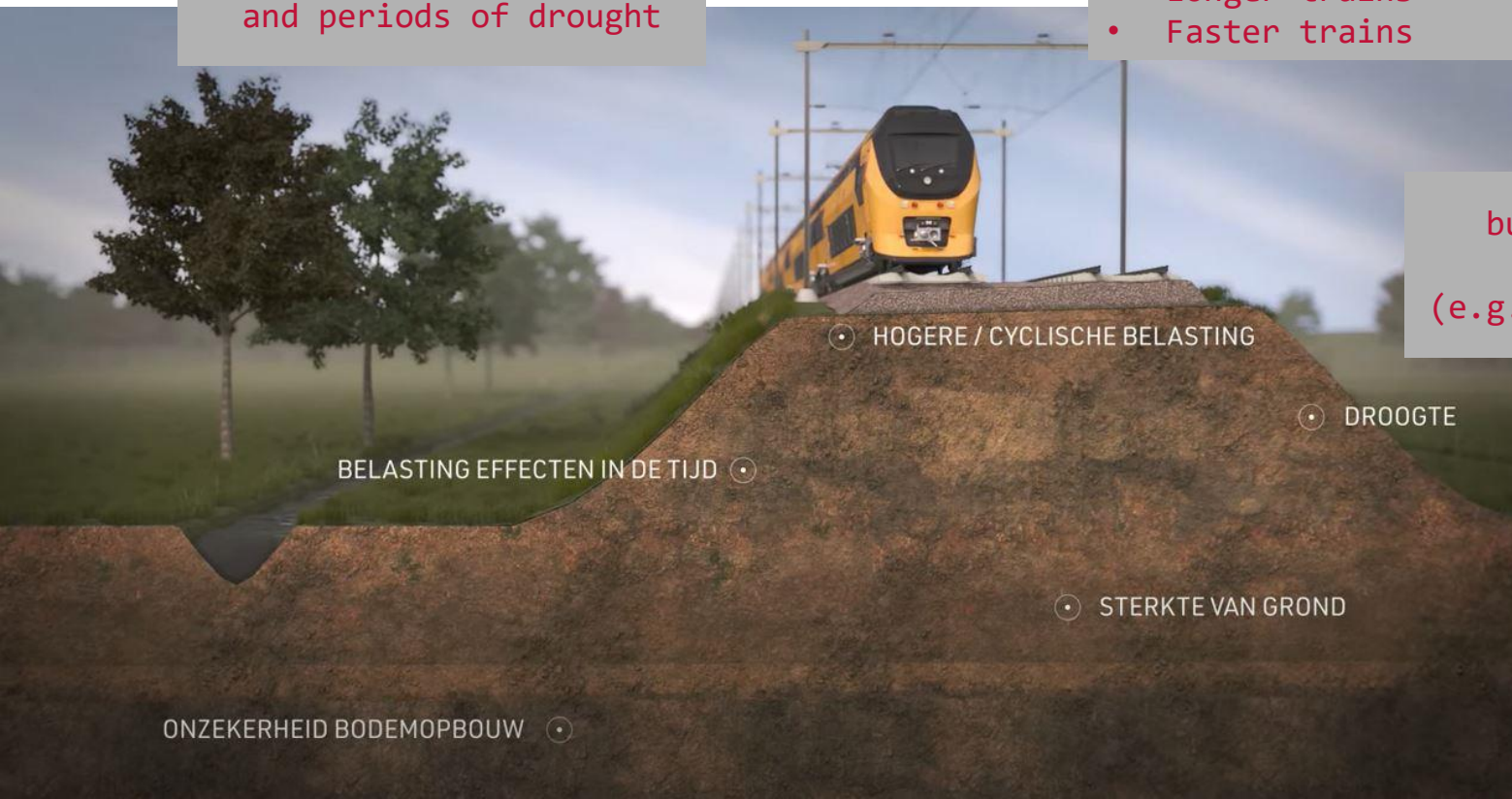
• HOGERE / CYCLISCHE BELASTING

• DROOGTE

BELASTING EFFECTEN IN DE TIJD •

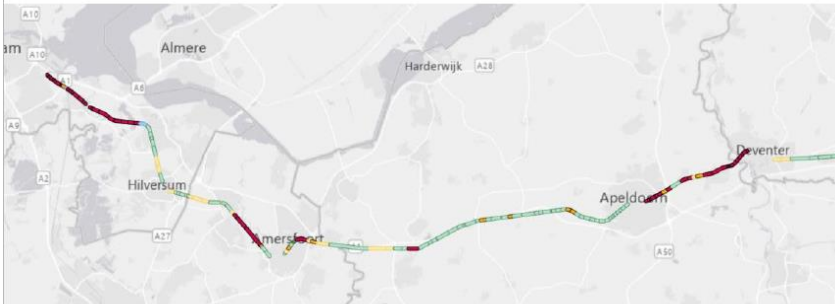
• STERKTE VAN GROND

ONZEKERHEID BODEMOPBOUW •



Current approach

- Countrywide Network Analysis: finding the weak spots
- Assessments for specific lines (e.g. Route Intercity Amsterdam - Berlin)
- Scientific Research (video)



("faster journey to Berlin one step closer")

Rail embankments

Movie:

20220422 ProRail - Baanlichaam animatie (UK Subs) -
Final V1