



SCADA OPERATIONAL SYSTEM 26-40

Information meeting – Market Consultation

TenderNed 460754

dd. 30-04-2024

ProRail

Join us in thinking about an operational system for railway assets!

Agenda

1. Introduction team members
2. Purpose of the market consultation
3. Functionalities and Architecture
4. Planning and deadlines
5. Questions?

Goals of this Market consultation

- Gain insight into possibilities for a new (SCADA) operational system
- ProRail is looking for an integrable solution for monitoring and operating (railway) assets, including SCADA functionalities.

Note: ProRail would like to clearly indicate that this market consultation is not directly related to a tender process

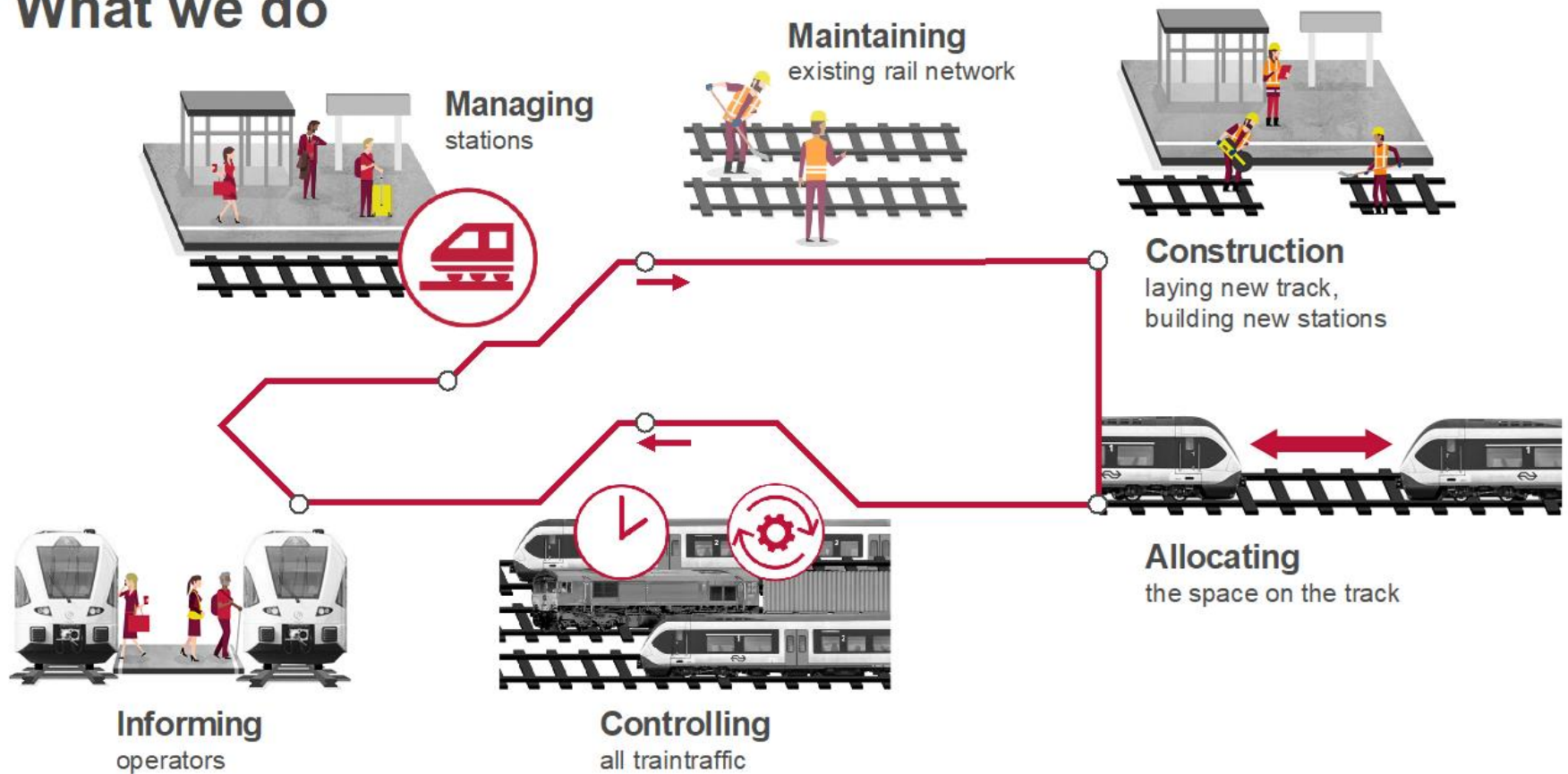
Our mission

We connect people, cities and companies, now and in the future. We make pleasant travel and sustainable transport possible while providing a safe railway environment.



ProRail Connects. Improves. Makes sustainable.

What we do



24/7

Passenger transport



1.45 million
passengers per day



11 operators
of passengers

145 million km
passenger transport
per year

**Safety
Reliability
Punctuality
Sustainability**

24 hours
per day
7 days
a week
365 days
a year

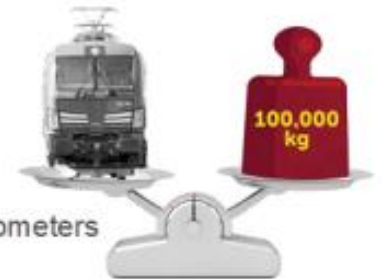
17.5 million
population

4 million
local residents

Freight transport



15 billion
freight tonne-kilometers
per year

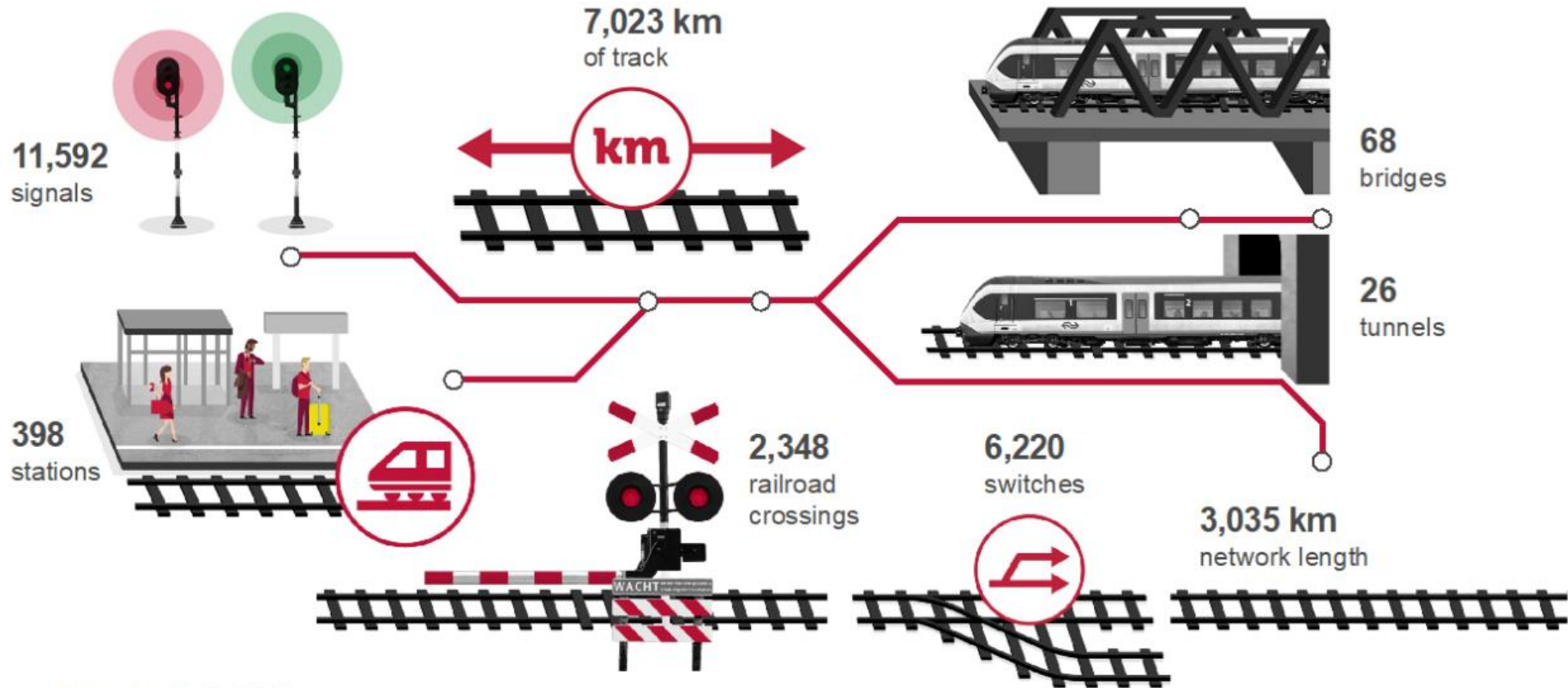


20 railway
undertakings

11 million km
freight transport per year

Source: www.prorail.nl/samenwerken/vervoerders/onze-klanten

Infrastructure



Source: Jaarverslag ProRail 2022

Desired objective of the solution

Architecture and Functional flexibility

- ❑ Modular structure of operational system functionalities
- ❑ Expansion of connectable assets with different safety classifications

Central and decentral user experience

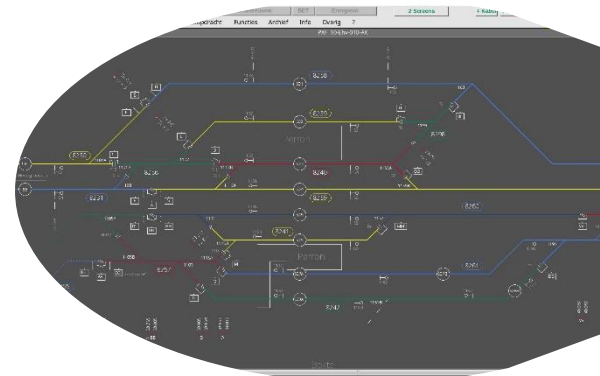
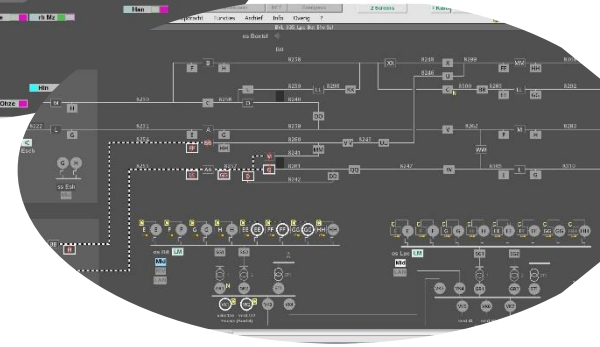
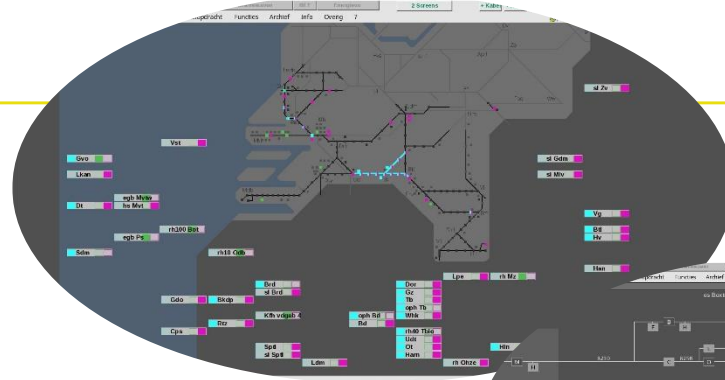
- ❑ Optimal support for different users

Migration and maintenance

- ❑ Renew functionality and (possible) transition of already connected assets
- ❑ Contract support organization for the next $n(>15)$ years

Current situation

- Different OT Assets (EV, TTI, Heating installations, etc...)
- Multiple SCADA-systems (5)
- Central monitoring & controlling through The Operational Control Centre for Infrastructure (OCCI/OBI), part of The Asset Control Centre (ACC)
- Designing, modelling, testing and execution of Switching Sequences;
- Safeguarding procedures and fault recovery
- Operator tunnels and fire extinguishing installations
- Incorporation Discrete Level Crossing Monitoring System (DOSS)
- Guarding of the ERTMS



Desired situation – Technical

- Enhanced flexibility for addition of new and altered Railway Assets
- Uniform user experience (every workplace is suitable for every user)
- Access by third parties enabled and secure.
- Automation functionalities (programmable + parametrizable), e.g.:
 - Energy Management functionality.
 - Railway specific, such as Complete Line Shutdown.
 - User defined macro's, to be specified.
 - Stateful sessions + fire & forget
- Enhanced User and Rights management
- Potentially: monitoring and analysis functionality, including:
 - State observation & estimation;
 - Contingency analysis;

Desired situation – Organizational

- Turnkey or Continuous development platform: the ideal mix;
- High degree of scalability and flexibility;
- Reduced supplier dependency, e.g.:
 - Separate platform and integrator;
 - Open source?

Stakeholders operational system



To support or contribute to the following processes:

- Work plans, switching requests and assurance of safety of EV activities
- Switching programs (automatic release, switching on, grounding, etc.)
- Monitor and intervene in case of overload or unsafe situation
- Remotely operating infrastructure (fire extinguishing systems, etc.)
- Energy management functions (towards 2035)
- Implement infrastructure adjustments
- Resolving malfunctions with multiple parties
- Etc.

Stakeholders:

- Maintenance contractor wants to be able to work safely
- OBI-operator wants to guarantee safety and availability of rail infrastructure
- Asset manager wants insight into the use and load of the infrastructure
- Contract manager wants insight into the performance of a maintenance contractor
- The supplier (in the role of manager) has the obligation to keep installations available
- Inspectors want to be able to see how systems are performing
- Etc.

Railway-sector – Particularities

The railway environment is continuously in development:

- Time-critical projects with guaranteed impact on the control system

Migration takes place in a 24/7 environment in which

- The operation continuous always!
- The operation adapts continuously due to projects
- Some functions are safety critical
- Variety of end-points (Assets), all with their own Asset owners

Railcenter: Test- en development center

- A conditioned test-environment is present
- Knowledge regarding railway assets and systems is concentrated
- A mock-up of the existing operational control system is available.

Bottomline: The project does not only involve a big development aspect, but also a very large migration-aspect.

Operational view

ACC-OBI landschap

Telefonie: zelfde
infrastructuur als VL,
veiligheidskritische
communicatie

ACC bewaakt de beschikbaarheid en prestatie van de infrastructuur en de veiligheid in de tunnels.

Visie: Voor ACC bedieningsdeskundige en system operator is er één werkplek die de informatie en de presentatie uit verschillende bronnen bij elkaar brengt

Procesondersteuning

Bewaken &
Bedienen
SCADA

Monitoren
PMP

Monitoren
CCTV

Monitoren
OBM

Storings-
verwerking
EAM

Werkplek-
beveiliging
BTD

ERTMS
IMS

Monitoren
BBMS

Monitoren
QVadis

Bewaken &
Bedienen
PRL

Te hoge aslast

Uitval overweg of PLC interlocking

Tunnels

Voor ACC zijn er meerdere informatiebronnen noodzakelijk
Naast klassieke tijdseries zijn er aanvullende signaleringen

Bewaken en
bedienen
logistiek

Bewaken en
bedienen infra

Bemeten
singuliere
objecten

Bewaken
beelden en
ruimtes

Bewaking
apparatuur

Bemeten
lineaire
systemen

Bemeten
materieel

Gegevenscollectie en overdracht

Energie-
voorziening

Railinfra-
voorziening

Tunnel-
technische
installaties

Railinfrastruc-
tuur

Railinfra-
voorziening

Beveiliging

Geografie &
Ligging

Belasting &
Slijtage

Hinder &
Trillingen

...

Delivery team:
ICT-I&O

Delivery team:
ICT-A&B-BA

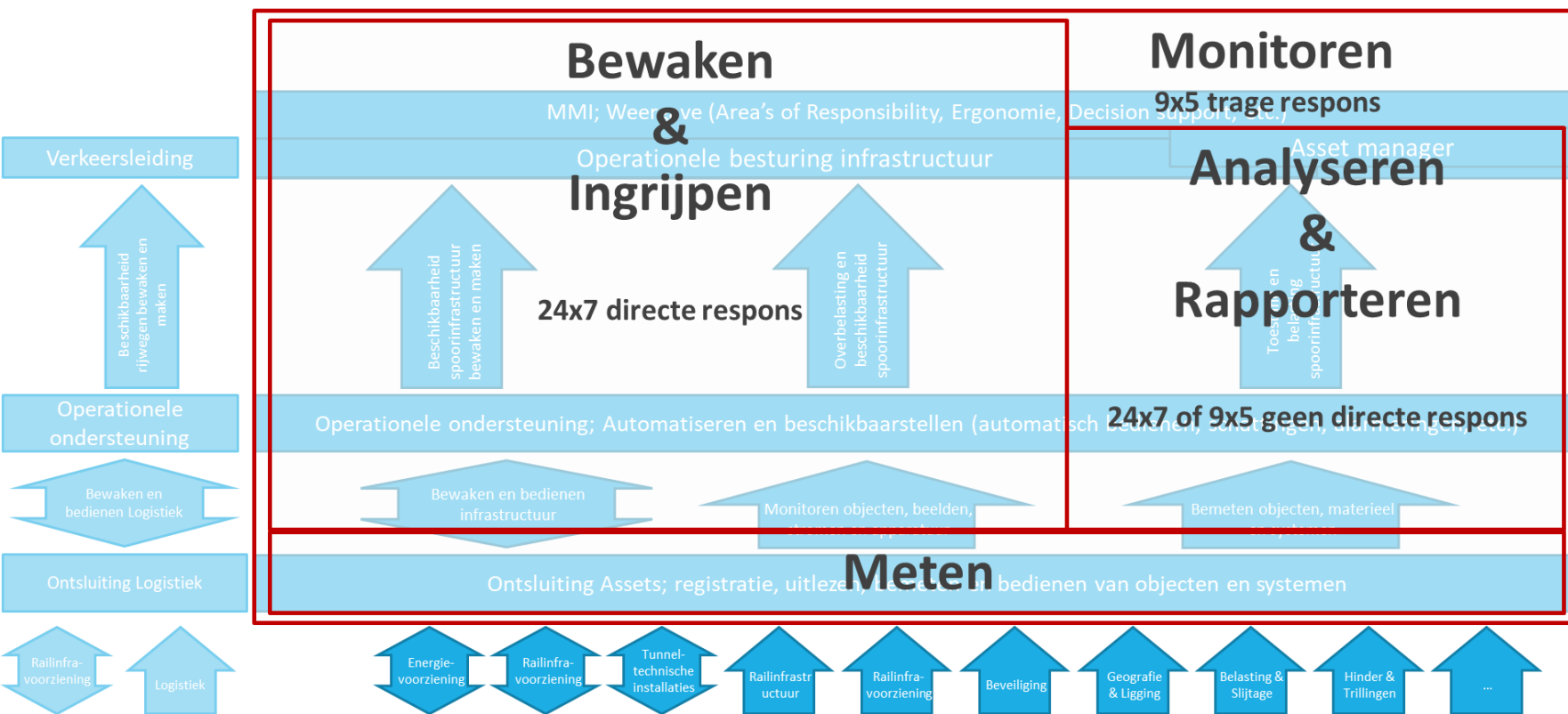
Delivery team:
ICT-A&B-ERP

Delivery team:
ICT-BTDfabriek

Delivery team:
AM & Thales

CONCEPT

Meten, Monitoren en Bedienen systeemfunctionaliteit



Architectural perspective: System characteristics

1. Multiple domains
2. Technology mix
3. Business functions
4. Organisation

Planning Market Consultation

Date	Activity
8-05-2024	Deadline for asking questions regarding the information provided
17-05-2024	Submit answers to the questions asked and any changed documentation by ProRail
29-05-2024	Deadline for submitting answers to the questions in section 3
31-05-2024	Selection of individual sessions
11-06-2024 t/m 13-06-2024	Individual sessions (if invited)
06-2024	Draft report sent to market consultation participants
2025	Tenderproces
2026 – 2029	Implementation

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