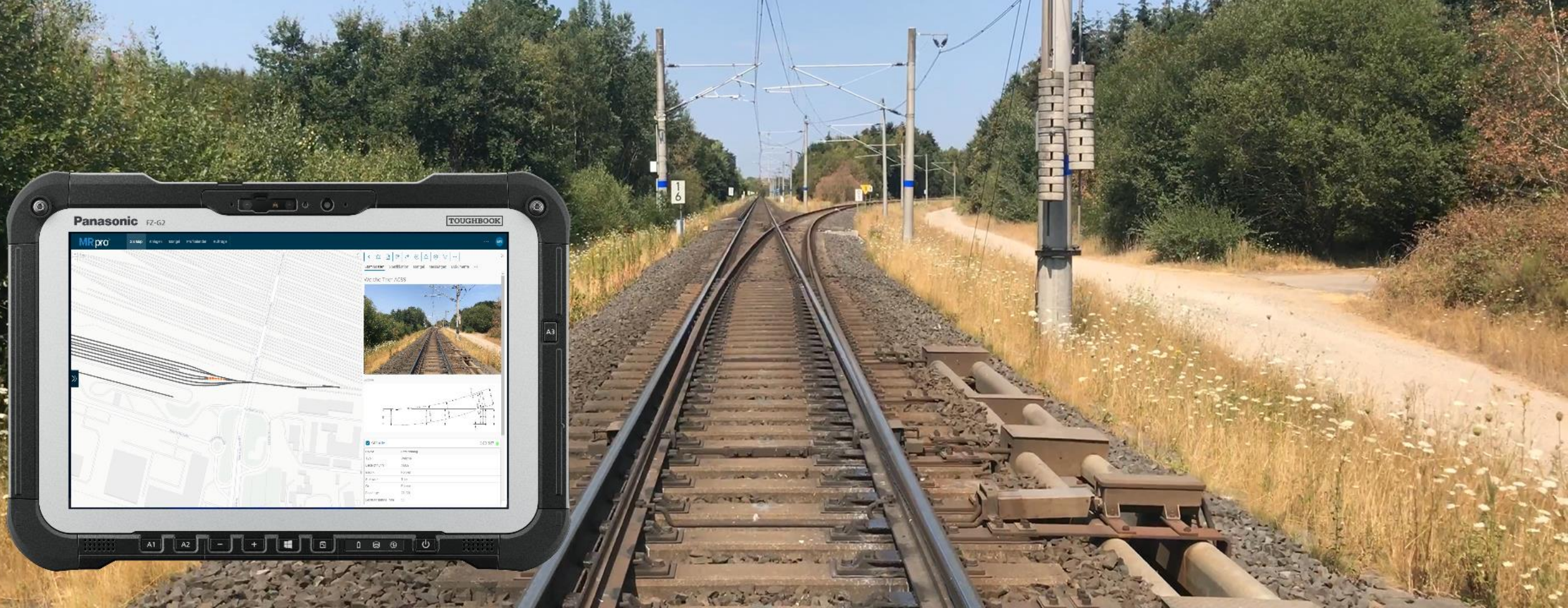




MR.pro[®] Infra-Data-Management Software

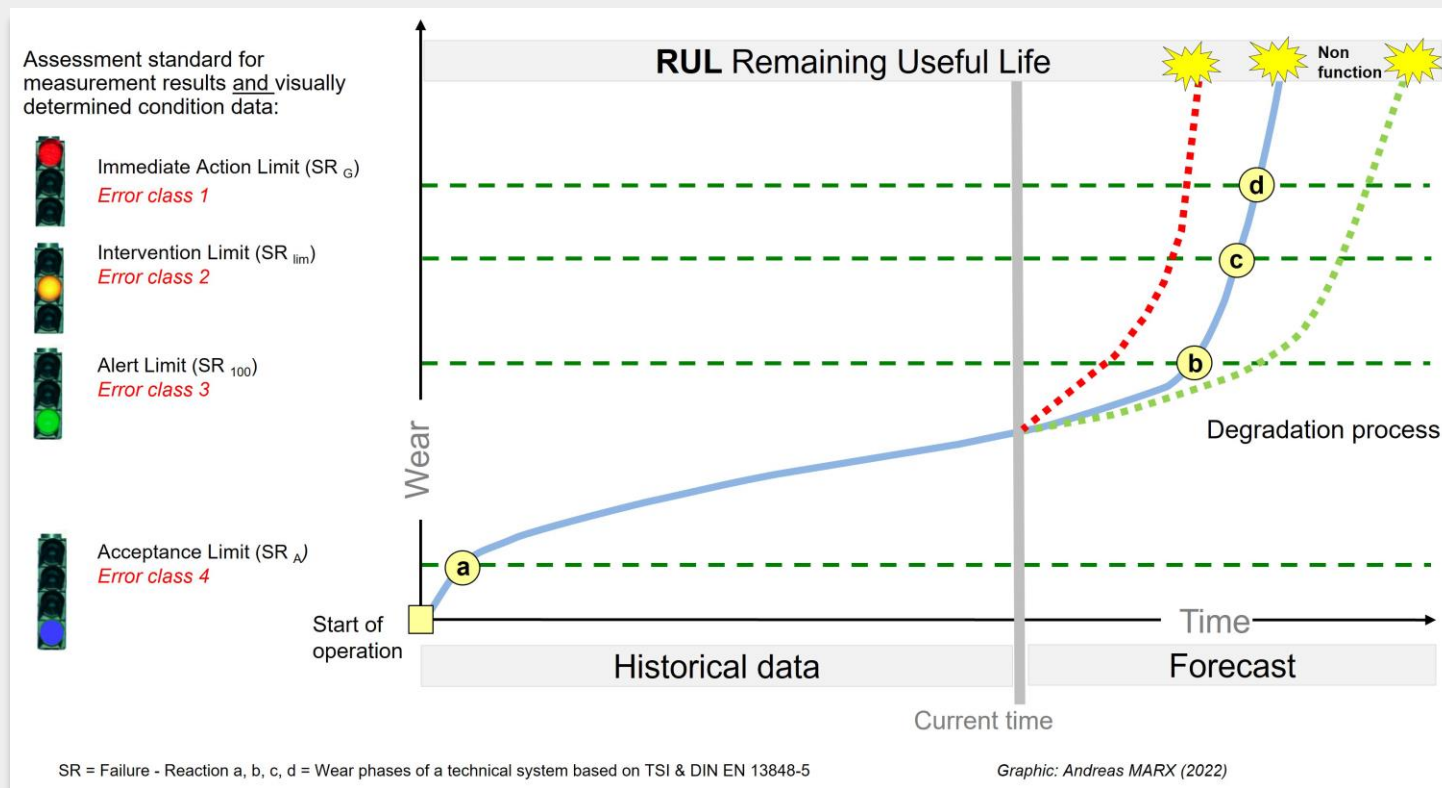
- analyze & evaluate
- decide & initiate
- document

Vision - what we want to achieve

Maximum service life for rail networks

As a joint venture between Rhomberg Sersa & Vossloh, we at RSV have extensive expertise in the construction and maintenance of rail traffic routes. With this knowledge, we support infrastructure operators in optimizing the service life in the long term.

Our focus is on maintaining existing systems in order to be able to use their inherent resources (grey energy) economically for as long as possible.



Company History

Schreck-Mieves	1904	Gründung der Paul Schreck KG in Halle/Saale,
	01.02.1994	Gründung Instandhaltung & Management als Weichen-Kundendienst in Longuich
Balfour Beatty Rail	20.06.2008	Wechsel aller Gesellschaftsanteile von der Schreck-Mieves Gruppe zur britischen BBRail plc
RS GLEISBAU Ein Unternehmen der RHOMBERG SERSA RAIL GROUP	01.02.2015	Übernahme der ehemaligen Schreck-Mieves Unternehmensteile durch die österreichisch-schweizerische Rhomberg Sersa Rail Group (RSRG)
RHOMBERG SERSA SERVICE Ein Unternehmen der RHOMBERG SERSA RAIL GROUP	01.07.2017	Ausgründung der Services-Abteilung in die Rhomberg Sersa Service GmbH, Spezialisierung auf Maintenance Solutions
RHOMBERG SERSA // vossloh	01.04.2018	rückwirkend neuer Gesellschafter Vossloh Rail Services GmbH und Umbenennung in Rhomberg Sersa Vossloh GmbH (RSV)

About MR.pro®

Customer network



Urban Railways



Railroads, Industry

Software
Developer

5



Track & IT
experts



>500
Daily users



F1 Inspection experts



Visual inspection
+ Measurements



Analysis



Assessment



Condition



Actions

F2 Asset- management



Decision
support



Visualization GIS



Wear reserve
indication KAV®



Projectmanage
ment

OBJECTS



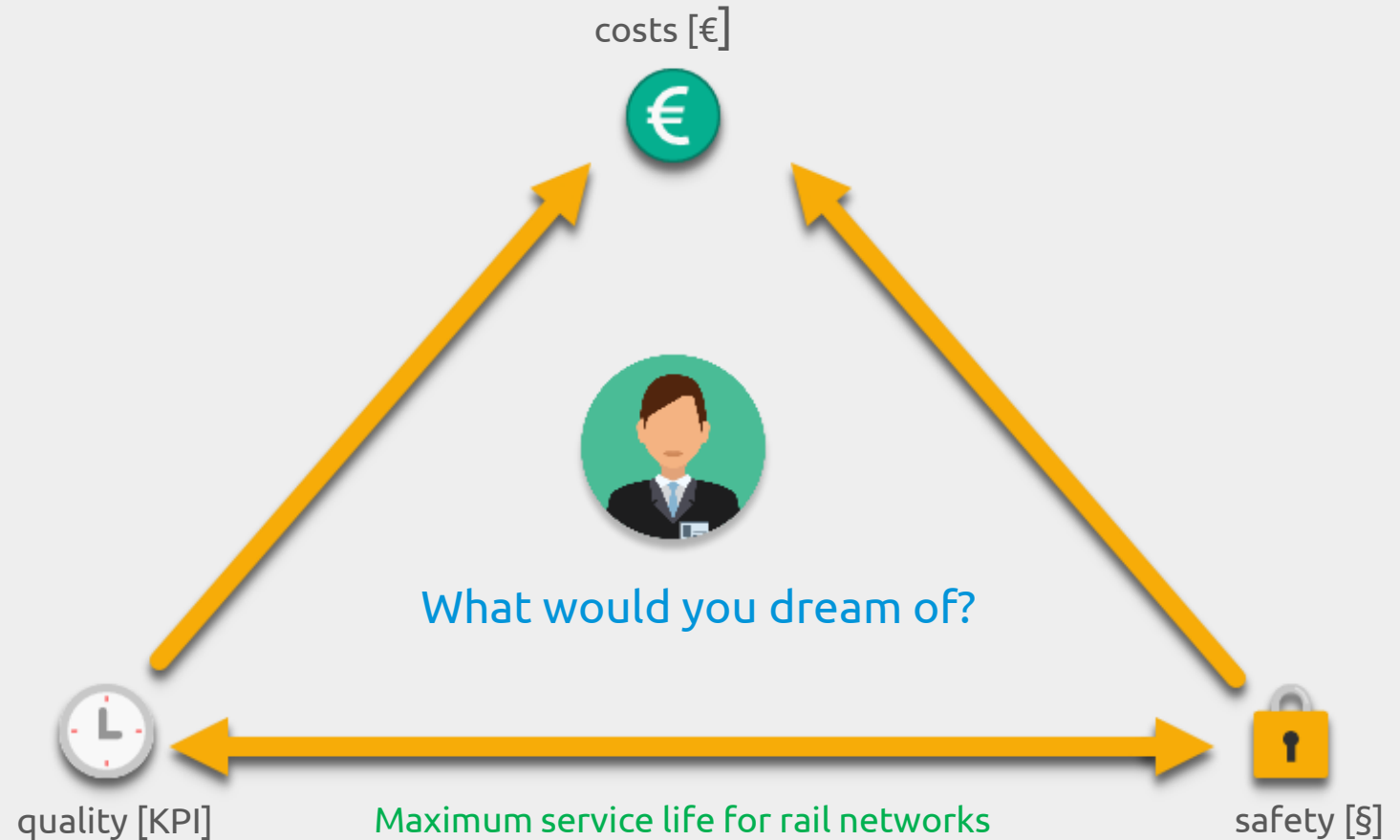
> 400 inspected networks

SINCE 2001

If I were... an Infrastructure Manager

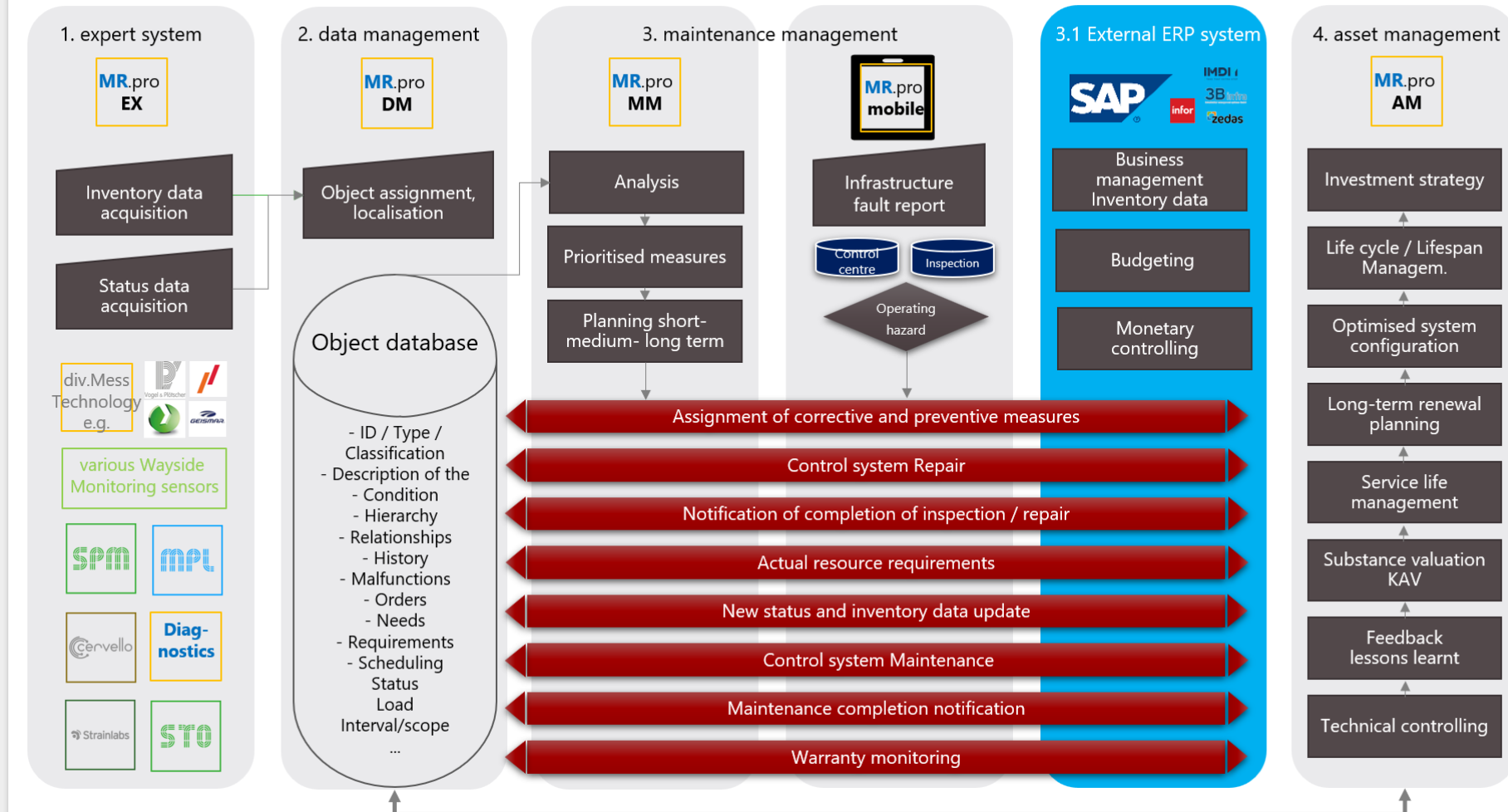
Quality and safety are the basis for several KPIs:

- Availability
- Punctuality
- No derailments
- Passenger comfort
- Noise and vibration
- KAV (remaining useful life)
- Correct maintenance measures

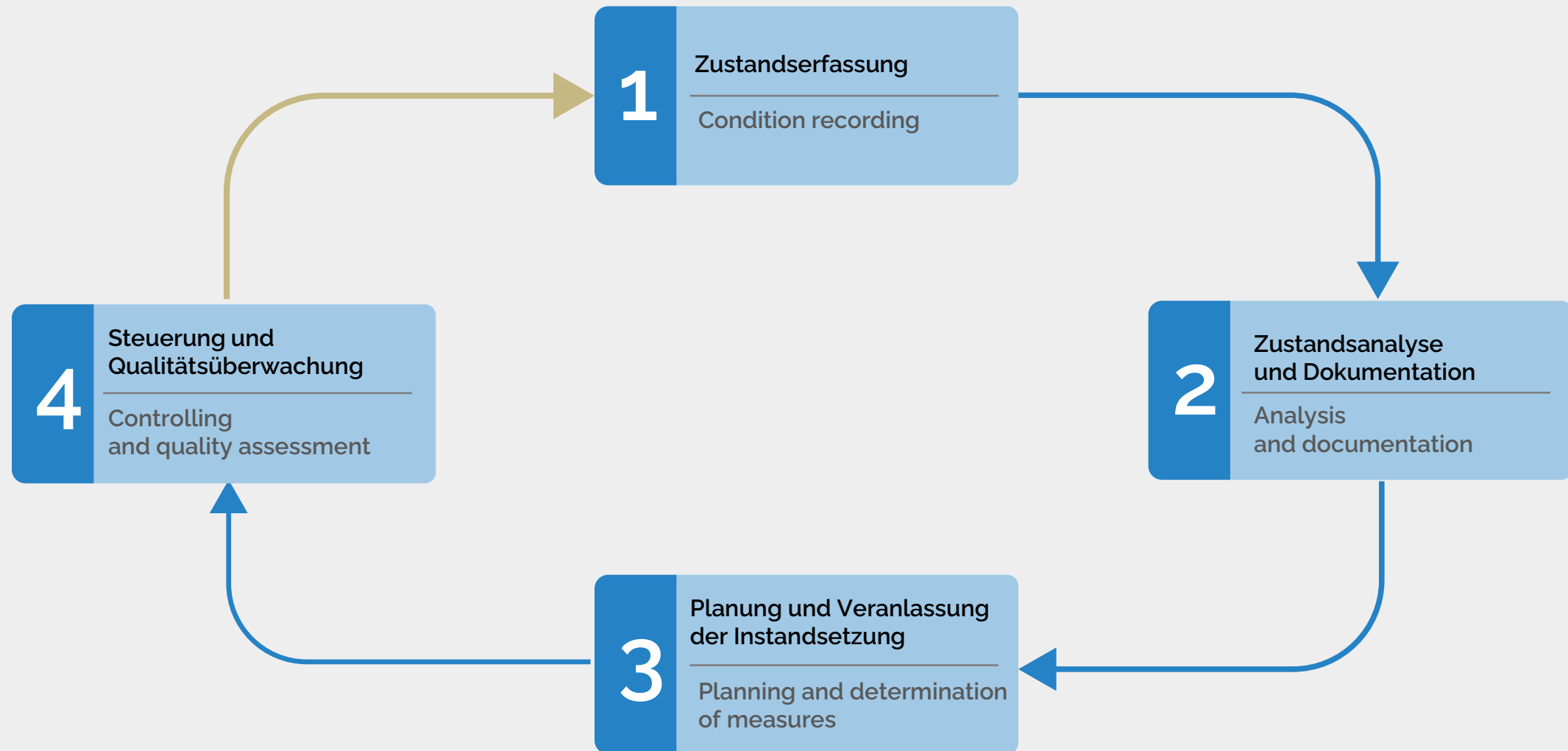


Asset Strategy

Maintenance management for larger Networks with ERP integration

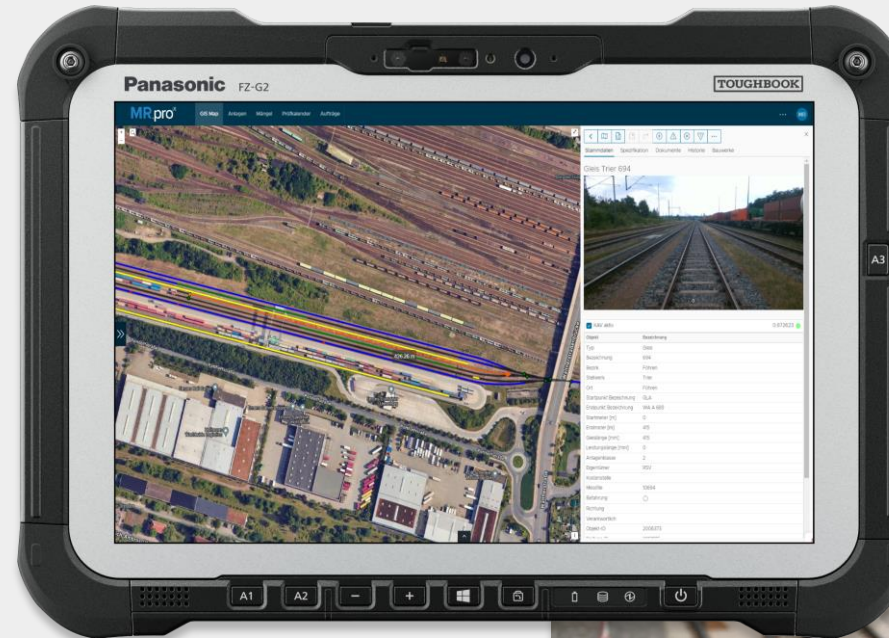


Workflow Infrastructure-Maintenance



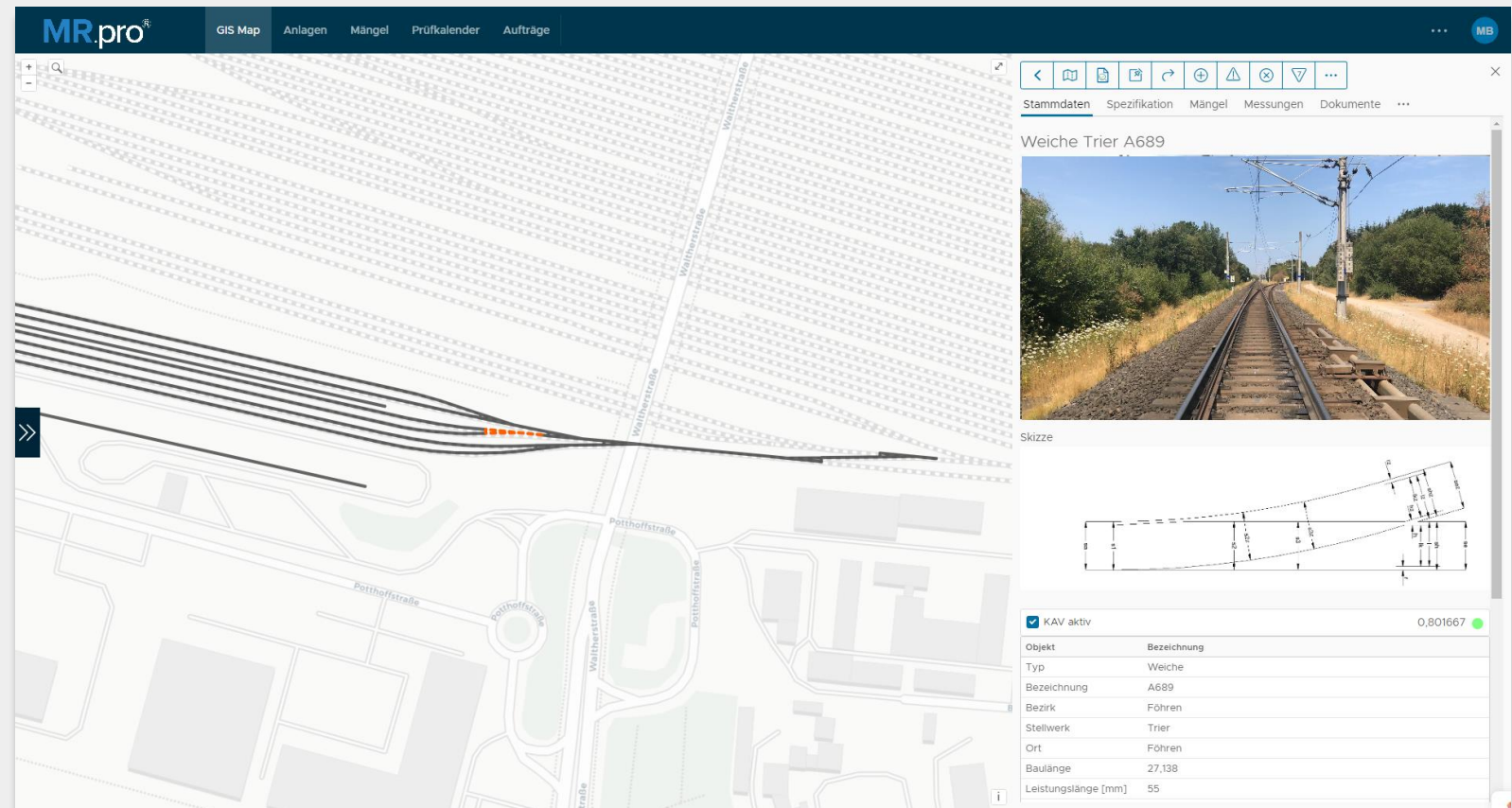
Range of services

- Inventory
- Measurement & testing
- Interfaces to measurement technology
- Condition analysis Classification
- Documentation
- Evaluation
- Commissioning
- Control system
- Feedback/final report
- Visualization
- Georeferencing
- Life history
- Substance evaluation and prognosis (KAV®)
- Individual inspection intervals
- Walkthroughs
-



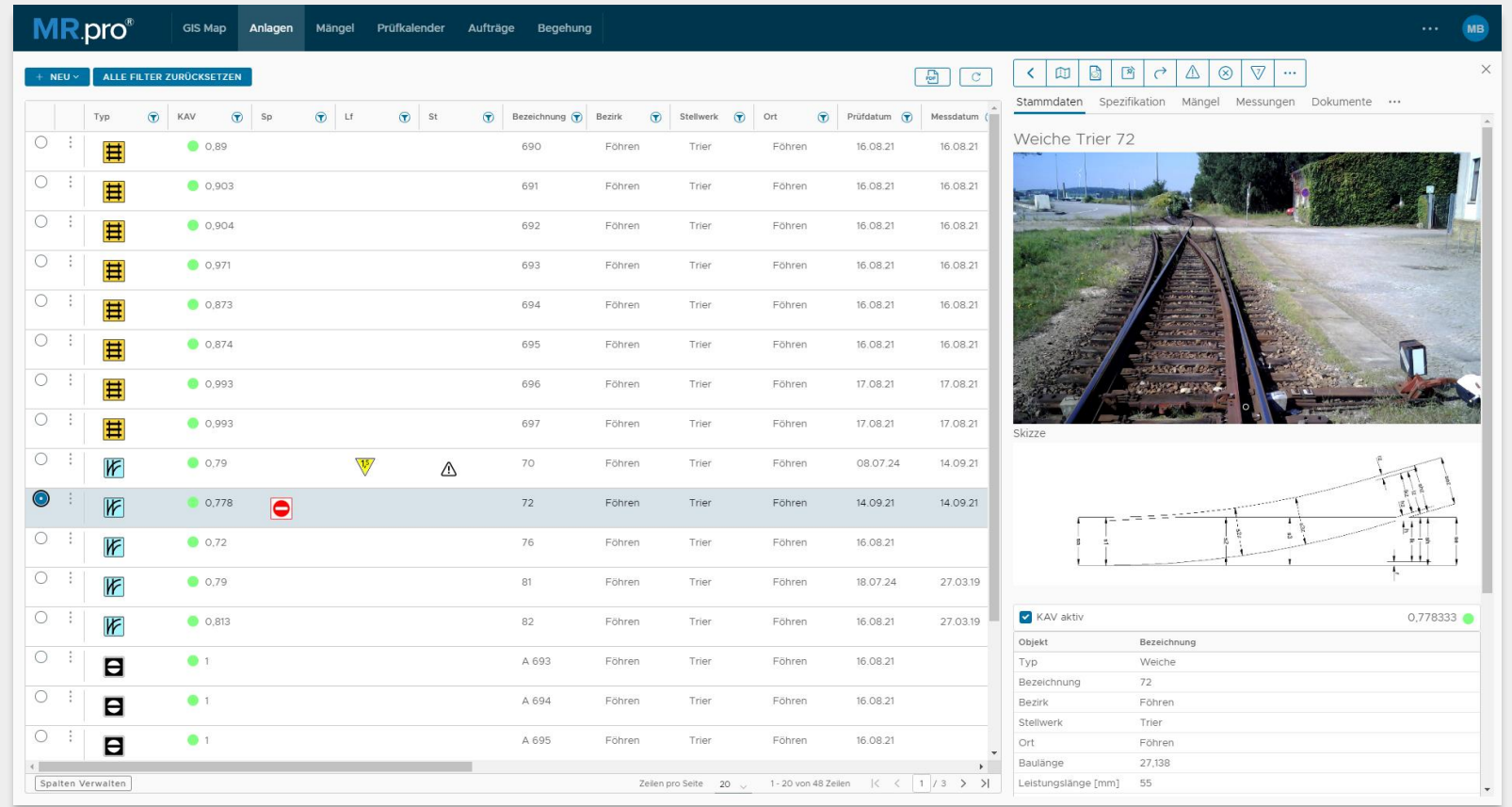
The GIS Map - getting started with the Software

The GIS Map Viewer is used to quickly identify objects and is also the control center for the entire maintenance cycle



...or via the System Overview

All objects can be searched for and called up in the project explorer. Even complex and extensive systems can be easily managed.



The screenshot displays the MR.pro software interface. The main window shows a table of system objects with columns for Typ, KAV, Sp, Lf, St, Bezeichnung, Bezirk, Stellwerk, Ort, Prüfdatum, and Messdatum. The object with Bezeichnung 72 is highlighted. To the right, a detailed view of 'Weiche Trier 72' is shown, including a photograph of the switch and a technical sketch. Below the sketch, a table provides details for the selected object.

Objekt	Bezeichnung
Typ	Weiche
Bezeichnung	72
Bezirk	Föhren
Stellwerk	Trier
Ort	Föhren
Baulänge	27,138
Leistungslänge [mm]	55

Inventorization

MR.pro® contains standardized modules for the structured recording of master data and condition data for all types of track infrastructure.

The screenshot displays the MR.pro software interface for inventorying switches. The main table lists various switch types with their KAV (Condition Assessment Value) and other identifiers. A detailed view of a specific switch, 'Weiche Trier 72', is shown, including a photograph and a technical diagram with dimensions.

Typ	KAV	Sp	LT	St	Bezeichnung	Bezirk	Stellwerk
...	0.873				694	Föhren	Trier
...	0.874				695	Föhren	Trier
...	0.993				696	Föhren	Trier
...	0.993				697	Föhren	Trier
...	0.79				70	Föhren	Trier
...	0.778				72	Föhren	Trier
...	0.72				76	Föhren	Trier
...	0.79				81	Föhren	Trier
...	0.83				82	Föhren	Trier
...	1				A 693	Föhren	Trier
...	1				A 694	Föhren	Trier
...	1				A 695	Föhren	Trier
...	1				A 696	Föhren	Trier
...	1				A 697	Föhren	Trier
...	0				A1	Föhren	Trier
...	1				A1	Föhren	Trier

Inventory data for switches

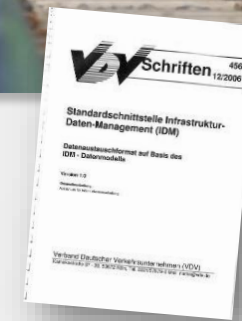
The screenshot displays the MR.pro software interface for inventorying tracks. The main table lists various track types with their KAV and other identifiers. A detailed view of a specific track, 'Gleis Trier 690', is shown, including a photograph and a list of technical specifications.

Typ	KAV	Sp	LT	St	Bezeichnung	Bezirk	Stellwerk
...	0.89				690	Föhren	Trier
...	0.903				691	Föhren	Trier
...	0.904				692	Föhren	Trier
...	0.971				693	Föhren	Trier
...	0.873				694	Föhren	Trier
...	0.874				695	Föhren	Trier
...	0.993				696	Föhren	Trier
...	0.993				697	Föhren	Trier
...	0.79				70	Föhren	Trier
...	0.778				72	Föhren	Trier
...	0.72				76	Föhren	Trier
...	0.79				81	Föhren	Trier
...	0.83				82	Föhren	Trier
...	1				A 693	Föhren	Trier
...	1				A 694	Föhren	Trier
...	1				A 695	Föhren	Trier

Track inventory data

Carry out an Inspection

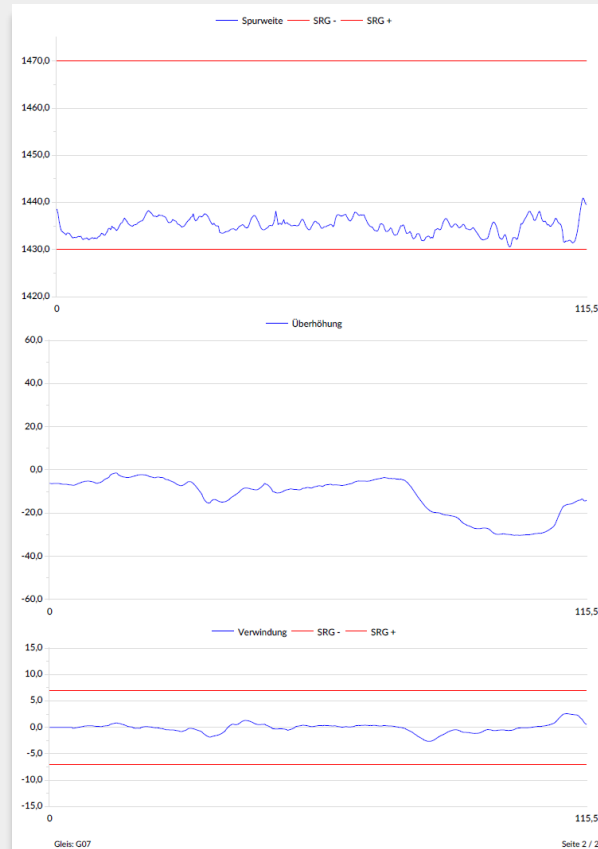
- Management of all master and condition data in a database
- Acceleration of the inspection process through personalized, objectified direct input on site using a touchscreen outdoor notebook in automated input masks with type-dependent defect and repair catalogues
- Guaranteed completeness of the inspection through dialog guidance and defined mandatory fields
- Secured documentation of the operational and functional capability of the system, updatable and usable as a life file including deadline monitoring
- Interface to database-based information systems based on VDV Guideline 456



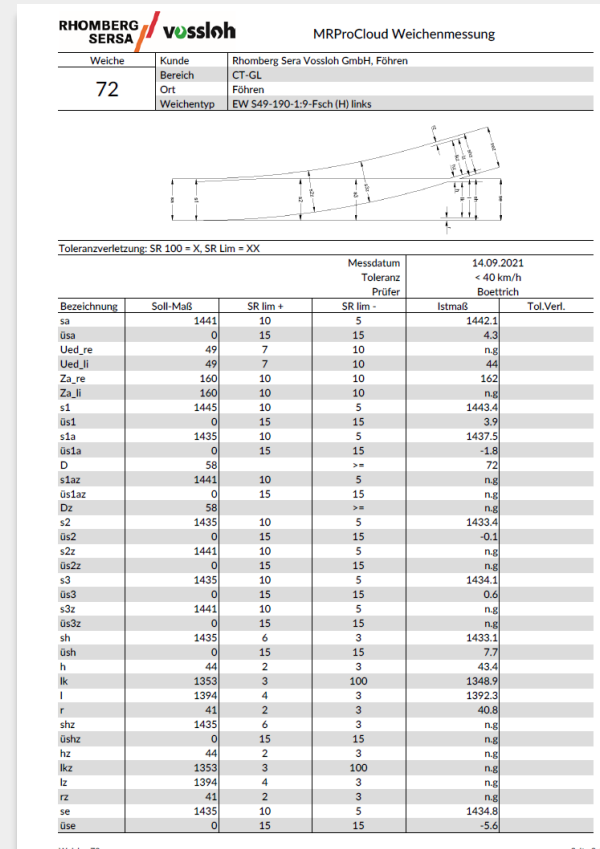
Measurements

MR.pro meets all the requirements of a timely software solution for inspectors and makes more out of measurement results:

- evaluation
- summarization
- visualization
- documentation



Track measurement



Switch measurement

Documentation

MR.pro provides the user with a comprehensive overview of the condition, measurement results and construction types of objects.

MR.pro switch inspection

RHOMBERG SERSA // vossloh MR.pro® Inspektion

Kunde: Rhomborg Sera Vossloh GmbH, Föhren
Weiche: 72

EW 549-190-1-9-Fsch (H) links

Inspektion vom: 14.09.2021

Anlagenklasse: 1
Radler: R1 1-60
Schwellenjahr: 2002
Bedienungspart: Handumstellung
Verschlussart: Vb 35, Bkl 61-1
Zungenroller: ja
Befestigungsart: KS-Bau
Weichenschloss: Rechts



Zustand, Funktion u. Vollständigkeit	ÜS	n+Ü	Mangelnr	Lage	Beschreibung des Mangels	Folienklasse
Spurweiten	x					
Leitweiten	x					
Leitkantenabstand	x					
Rillenweiten	x					
Rillentieften	x					
Durchfahrillen	x					
ggs. Höhenlage	x					
Längshöhe	x					
Richtung	x					
Bettung	x					
Schienen	x					
Herzstück	x					
Radler	x					
Schwellen	x	x	1	Zungenvorrichtung	Holzschwellen(n) biologischer Zerfall 5 Stück	3
Gleitstühle/-platten	x					
Stützknaggen/-winkel	x					
Rippenplatten	x					
Schwellenschrauben	x					
Hakensrauben	x					
Klemmplatten	x					
Federlinge	x					
Weichenschrauben	x					
Zwischenlagen	x					
Verschluss	x	x	2	Handumstellbock	Umstellstange verbogen	2
			3	Handumstellbock	Anfahrerschutz fehlt	3
Zungenroller	x					
Schweißstöße	x					
Zungenanlage	x					
Weichengrenzzeichen	x					

ÜS = in Ordnung, n+Ü = nicht in Ordnung, bitte Instandsetzungsbezeichnung beibehalten

Weiche: 72 Seite 1 / 5

Instandsetzungshinweise:

zum o.g. Mangel Nr.	Instandsetzungsempfehlung	Erledigt
1	Schwellen(n) erneuern	
2	Stellstange erneuern	
3	Anfahrerschutz erneuern	

Datum der Prüfung: 14.09.2021 Prüfer: Böttich

Der ordnungsgemäße bzw. betriebssichere Zustand (§24 Abs.1 BOA) wird bescheinigt

Bemerkung: Weiche gerade verschlossen



1. Bild zu Mangel: 1



1. Bild zu Mangel: 2

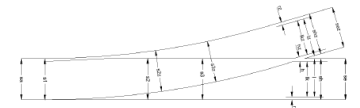


1. Bild zu Mangel: 3

Weiche: 72 Seite 2 / 5

RHOMBERG SERSA // vossloh MRProCloud Weichenmessung

Kunde: Rhomborg Sera Vossloh GmbH, Föhren
Ort: CT-GL Föhren
Weichentyp: EW 549-190-1-9-Fsch (H) links



Toleranzverletzung: SR 100 = X, SR Lim = XX

Bezeichnung	Soll-Maß	SR lim +	SR lim -	Messdatum	
				Toleranz	Prüfer
sa	1441	10	5	14.09.2021	
üsa	0	15	15	< 40 km/h	
üed_re	49	7	10	Boettlich	
üed_li	49	7	10		
za_re	160	10	10		
za_li	160	10	10		
s1	1445	10	5		
üs1	0	15	15		
s1a	1435	10	5		
üs1a	0	15	15		
D	58		>=		
s1az	1441	10	5		
üs1az	0	15	15		
Dz	58		>=		
s2	1435	10	5		
üs2	0	15	15		
s2z	1441	10	5		
üs2z	0	15	15		
s3	1435	10	5		
üs3	0	15	15		
s3z	1441	10	5		
üs3z	0	15	15		
sh	1435	6	3		
üsh	0	15	15		
h	44	2	3		
lk	1353	3	100		
l	1394	4	3		
r	41	2	3		
shz	1435	6	3		
üshz	0	15	15		
hz	44	2	3		
lkz	1353	3	100		
lz	1394	4	3		
rz	41	2	3		
se	1435	10	5		
üse	0	15	15		

Weiche: 72 Seite 3 / 5

Documentation

MR.pro provides the user with a comprehensive overview of the condition, measurement results and construction types of objects.

MR.pro track inspection

MR.pro® Inspektion

Kunde	Demo, Musterstadt	
WeicheNr	G07	
Bezirk	RSV	
Abschnitt	Kohlebunker	
Startpunkt	WE 9	
Endpunkt	WE 12	
Anlagenklasse	A	
Messfile	G07	
Länge (m)	231,00	
Prüfdatum	20.11.2017	

Bauwerke		
Anfang (m)	Ende (m)	Bauwerk / Einrichtung
Keine Einrichtungen		
Zustand		

Spezifikation					
Anfang(m)	Ende(m)	Schienenform	Schwellen/Eindeckung	Befestigung	
0,0	6,0	S49	(H)	K-Bau	
6,0	15,0	S49	(B)	K-Bau	
15,0	113,0	S49	n.g. / Betonplatten	n.B.	
113,0	115,0	S49	(B)	K-Bau	
115,0	116,0	S49	(H)	K-Bau	

Mängel						
lfd. Nr.	Anfang(m)	Ende(m)	Lage	Mangelbeschreibung	Umfang	FK
1	8,0	113,0	links/rechts	Rillen verschmutzt		4
2	37,0	37,0	links/rechts	Laschenstoß Höhenversatz	4 mm	3
3	45,0	132,0	links/rechts	verschmutzt	0	3

Instandsetzungshinweise:

zum o.g. Mangel Nr.	Instandsetzungsempfehlung	Erledigt
1	Rillen reinigen	16.12.2021
2	Übergangslaschen einbauen	16.12.2021
3	reinigen	

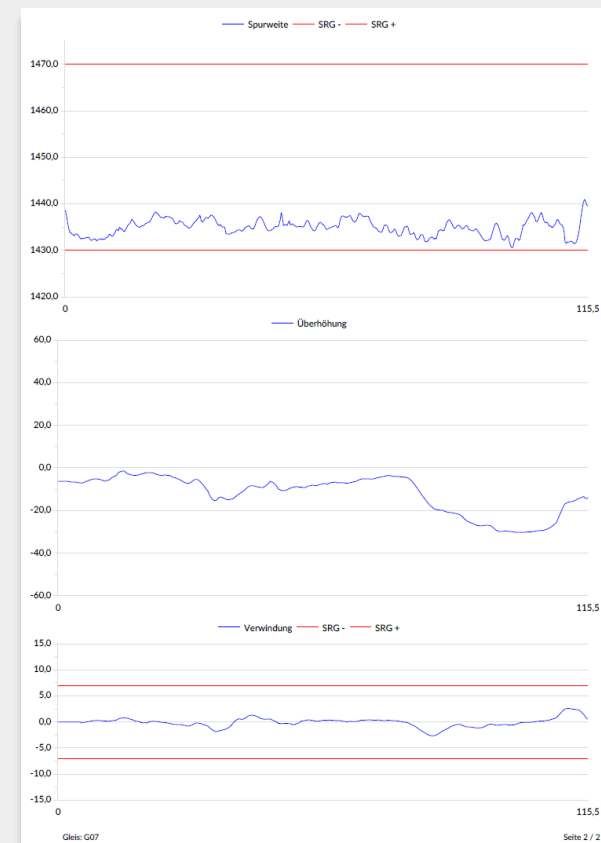
Datum der Prüfung: 20.11.2017 Prüfer: Grese Beauftragte Mängel: 

Der ordnungsgemäße bzw. betriebssichere Zustand (§24 Abs.1 BOA) wird bescheinigt



1. Bild zu Mangel 2

Gleis: G07 Seite 1 / 2



Preconfigured Object Types

- Switch*
- Track*
- Track buffer stop*
- Level crossings (infrastructure)
- Platform
- Bridge
- Culvert
- Connection (railroad)
- ALKIS property management (parcels of land, buildings)
- Point machine / setting device
- Track barriers
- signalling
- Track switching devices / wheel sensors
- Catenary / masts
- Further objects on customer request

* Standard database contents

Object Types

In addition to line objects such as tracks, point objects can also be managed in MR.pro®: Switches, crossings, track buffers, level crossings, masts, signalling, structures, buildings, etc.

The screenshot displays the 'Objekttypen verwalten' (Manage Object Types) interface in MR.pro®. The interface is divided into two main sections: 'Objekte' (Objects) and 'Prüfungen' (Inspections).

Objekte Table:

	Id	Typ	Symbol	Name	Bezeichnung	Anzahl	Ersteller	Erstellt	Username	Status
+	1			Weichen Nr.	Weiche	16	Rainer	01.01.08, 00:00	SM Admin	11.09.12, 14:59
○	2			Gleis Nr.	Gleis	23	Rainer	01.01.08, 00:00	SM Admin	11.09.12, 14:59
○	3			Gleis Nr.	Gleisabschluss	9	Rainer	03.08.12, 16:14	Rainer	11.09.12, 14:59
○	4			Weichenantrieb Nr.	Weichenantrieb	0	Metz, Andreas	07.03.13, 14:14	Böttrich	02.06.21, 13:19

4 Zeilen

Prüfungen Table:

	Bezeichnung	Prüfintervall	Messintervall	Anzahl	Username	Status
+	Inspektion	12	12	48	System	01.11.22

1 Zeilen

Eigenschaften (Properties) Sidebar:

Ansicht (View):

- Bahnsteigmessung ☐
- Bahnübergang Sichtdreieck ☐
- Einbauhistorie ☒
- Komponentenverwaltung ☐
- Linienbelegung ☐
- Logbuch ☒
- MessReg Messdaten verwalten ☒
- Schienenprofil ☐
- Stellkraftmessung ☐
- Zähler ☐

Export

Pflichtfelder (Mandatory Fields):

- Abteilung ☐
- Anlagenklasse ☐
- Checklisten bestätigen ☐
- Fehlerklassen ☒
- Grundinstandsetzung ☐
- Passbild ☒

Optionen (Options):

- Prüfkalender
- Zustand

can be typified with
object type symbols

Types & Components

Individual designs and component contents can be freely configured for all object types.

MR.pro[®]

GIS Map

Anlagen

Mängel

Prüfkalender

Aufträge

...

MB

Spezifikation verwalten

Objekte / Komponenten

Weiche

Gleis

Gleisabschluss

Weichenantrieb

Spezifikation: Weiche

		Feldtyp	Feldname	Pflichtfeld	Weteliste	Sortierung	Benutzer	Zeitstempel
☐	>>	Abc	Weichentyp	☒	☒	1000001	SM Admin	03.08.2012 15:39
☐	>>	Abc	Schienenform	☒	☒	1000002	SM Admin	03.08.2012 15:39
☐	>>	Abc	Spezifikation	☒	☐	1000003	SM Admin	03.08.2012 15:39
☐	>>	Abc	Zungenbauform	☐	☒	1000004	SM Admin	03.08.2012 15:39
☐	>>	Abc	Schwellenart	☐	☒	1000005	SM Admin	03.08.2012 15:39
☐	>>	Abc	Richtung	☐	☒	1000006	SM Admin	03.08.2012 15:39
☐	>>	Abc	Radlenker	☐	☒	1000007	SM Admin	03.08.2012 15:39
☐	>>	Abc	Schwellenjahr	☐	☐	1000008	SM Admin	03.08.2012 15:39
☐	>>	Abc	Bedienungsart	☐	☒	1000009	BBAAdmin	11.09.2012 14:45
☐	>>	Abc	Verschlußtyp	☐	☒	1000010	SM Admin	03.08.2012 15:39
☐	>>	Abc	Schienenwalzjahr	☐	☐	1000011	BBAAdmin	11.09.2012 14:44
☐	>>	Abc	Herzstück	☐	☐	1000012	SM Admin	03.08.2012 15:39
☐	>>	Abc	Zungeroller	☒	☐	1000013	BBAAdmin	12.09.2012 13:54
☐	>>	Abc	Bauart Z-Roller	☐	☐	1000014	BBAAdmin	12.09.2012 16:47
☐	>>	Abc	Befestigungsart	☐	☐	1000015	Böttrich	01.09.2021 15:41
☐	>>	Abc	Weichenschloss	☐	☐	1000016	BBAAdmin	11.09.2012 14:48
☐	>>	Abc	Bauartgruppen	☒	☒	1000017	SM Admin	03.08.2012 15:39
☐	>>	Abc	Gleitstühle	☐	☐	1000018	BBAAdmin	11.09.2012 14:48
☐	>>	Abc	Grundreinigung	☐	☐	1000019	BBAAdmin	11.09.2012 14:48

20 Zeilen

Condition Assessment and Classification

Condition recording with MR.pro is ergonomically designed to minimize the time required. Sophisticated dialog guidance ensures that nothing is overlooked, while the plausibility check prevents any operating errors.

Inspektion

Stammdaten

Spezifikation

Mangel / Zustand

Prüfart:

Schwellen

n.I.O.

☒

Lage

Angstlasche

Mangel

Schwellenlagefehler

Instandsetzung

Schwellenlage korrigieren

Umfang

1

Mengeneinheit

Stück

Fehlerklasse

2

Betriebsgefahr

☐

Bemerkung

Lnr	Prüfart	Nio	Mangel	Lage	Umfang	Mengeneinheit	Fehlerklasse	Instandsetzungshinweis
☐ 1	Spurweiten	☐						
☐ 2	ggs.Höhenlage	☐						
☐ 3	Längshöhe	☐						
☐ 4	Richtung	☐						
☐ 5	Bettung	☐						
☐ 6	Schienen	☐						
☐ 7	bewegliches Herzstü...	☐						
☒ 8	Schwellen	☐						
☐ 9	Gleitstühle/-platten	☐						
☐ 10	Spannbügel	☐						
☐ 11	Stütznaggen	☐						
☐ 12	Rippenplatten	☐						
☐ 13	Hakenschrauben	☐						
☐ 14	Schwellenschrauben	☒	Schwellenschraube(n) lose	Zungenvorrichtung	20	Stück	4	Schwellenschraube(n) befestigen oder er
☐ 15	Federringe	☐						
☐ 16	Weichenschrauben	☐						
☐ 17	Zwischenlagen	☐						
☐ 18	Schweißstöße	☐						
☐ 19	Verschluß	☐						
☐ 20	Zungenanlage	☐						
☐ 21	4 mm Probe	☐						
☐ 22	Weichengrenzzeichen	☐						

Medien hochladen (bis 50MB)

oder

UPLOAD

22 Zeilen

Assessment

The assessment and classification of identified defects has already been carried out in advance in consultation with the customer and is linked 1:1 with the MR.pro® defect code. The inspector automatically adopts the defect class when recording the defects.

The screenshot displays the MR.pro software interface for defect management. The top navigation bar includes 'GIS Map', 'Anlagen', 'Mängel', 'Prüfkalender', and 'Aufträge'. Below the navigation bar, there are search filters for 'Bedingung', 'Preis', 'LV-Position', 'zuständige Abteilung', and 'Equipment'. The main area is divided into four panels: 'Zuordnung' (Assignment), 'Prüfart' (Inspection Type), 'Mangel' (Defect), and 'Instandsetzung' (Maintenance). The 'Zuordnung' panel shows a tree structure with 'komplette Weiche' selected. The 'Prüfart' panel shows 'Bettung' selected. The 'Mangel' panel shows 'Anfahrerschutz fehlt' selected. The 'Instandsetzung' panel shows 'A-Maß Schieberstange korrigieren' selected. Each panel has a list of options and a 'Zurück' (Back) button.

The Visualization - the GIS Map Viewer

A mouse click takes the user directly from the graphic to the status and inventory data as well as to the generation of orders or feedback on completed repairs.

The screenshot displays the MR.pro GIS Map Viewer interface. The main map shows an aerial view of a railway yard with numerous tracks and industrial buildings. A specific track, 'Gleis Trier 696', is highlighted. To the right, a detailed data panel provides information about this track.

Stammdaten Spezifikation Mängel Dokumente

Gleis Trier 696

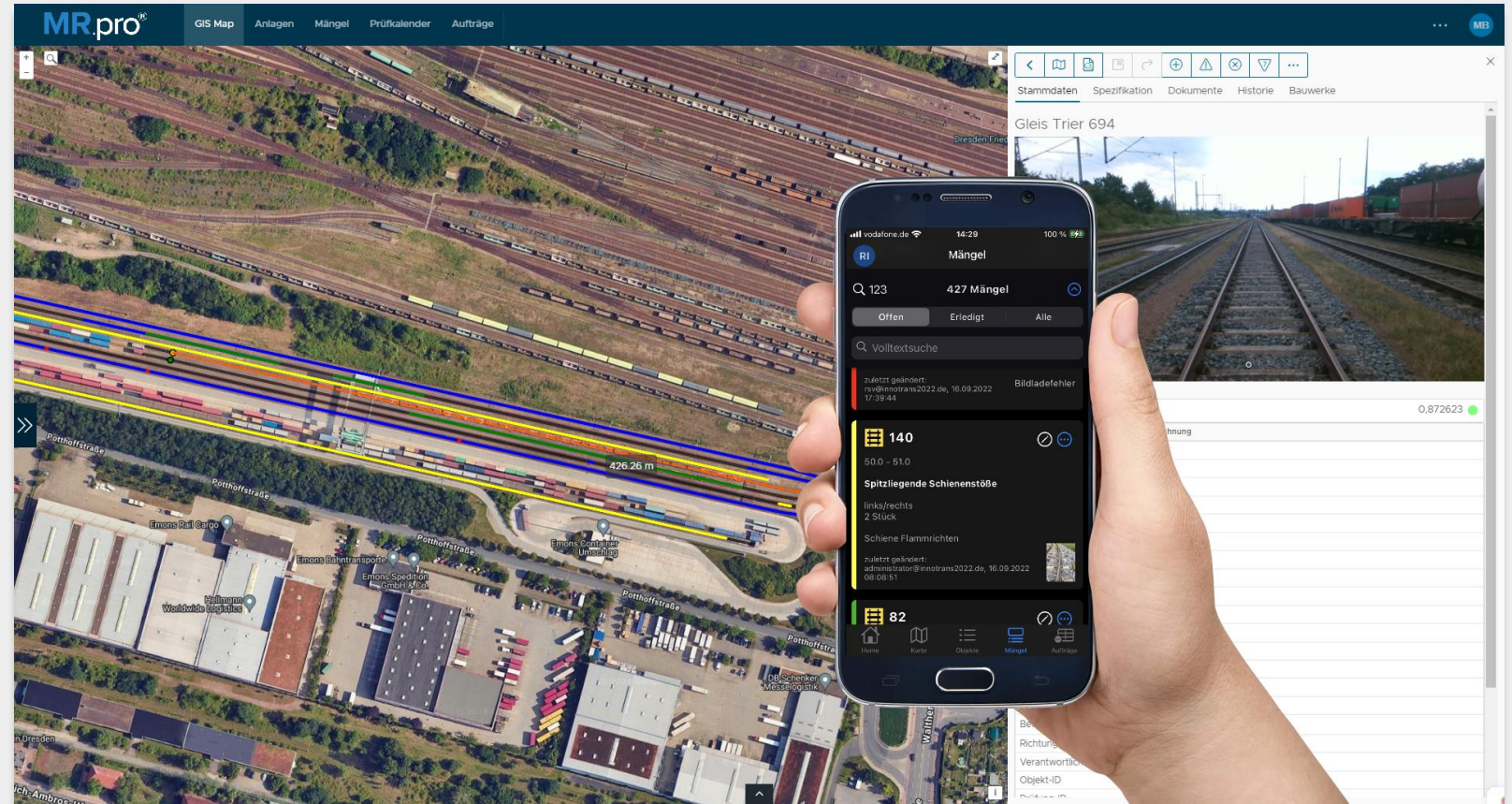
☒ KAV aktiv 0,992716

Objekt	Bezeichnung
Typ	Gleis
Bezeichnung	696
Bezirk	Föhren
Stellwerk	Trier
Ort	Föhren
Startpunkt Bezeichnung	WA A687
Endpunkt Bezeichnung	GLA
Startmeter [m]	0
Endmeter [m]	720
Gleislänge [mm]	720
Leistungslänge [mm]	0
Anlagenklasse	2
Eigentümer	RSV
Kostenstelle	
Messfile	10696

MR.pro as Mobile App

Defects can be recorded at any time by authorized persons on mobile devices and made available to all users as centrally stored information.

Feedback on measures carried out using mobile devices facilitates end-to-end digital documentation and can be made comprehensible and transparent with before/after photos or videos.



GIS Map - Viewer with Map Background

Database information can be visualized in a user-friendly way, as a colour-coded status overview with status bars, here based on freely available maps, e.g. from GoogleSatellitMap.

The screenshot displays the MR.pro GIS Map Viewer interface. The main map area shows a railway track layout with a color-coded status bar. The status bar is divided into segments of different colors (blue, green, yellow, red) representing different track statuses. The map is overlaid on a satellite background. The interface includes a top navigation bar with tabs for 'GIS Map', 'Anlagen', 'Mängel', 'Prüfkalender', and 'Aufträge'. A right-hand panel provides detailed information for the selected track, 'Gleis Trier 694'.

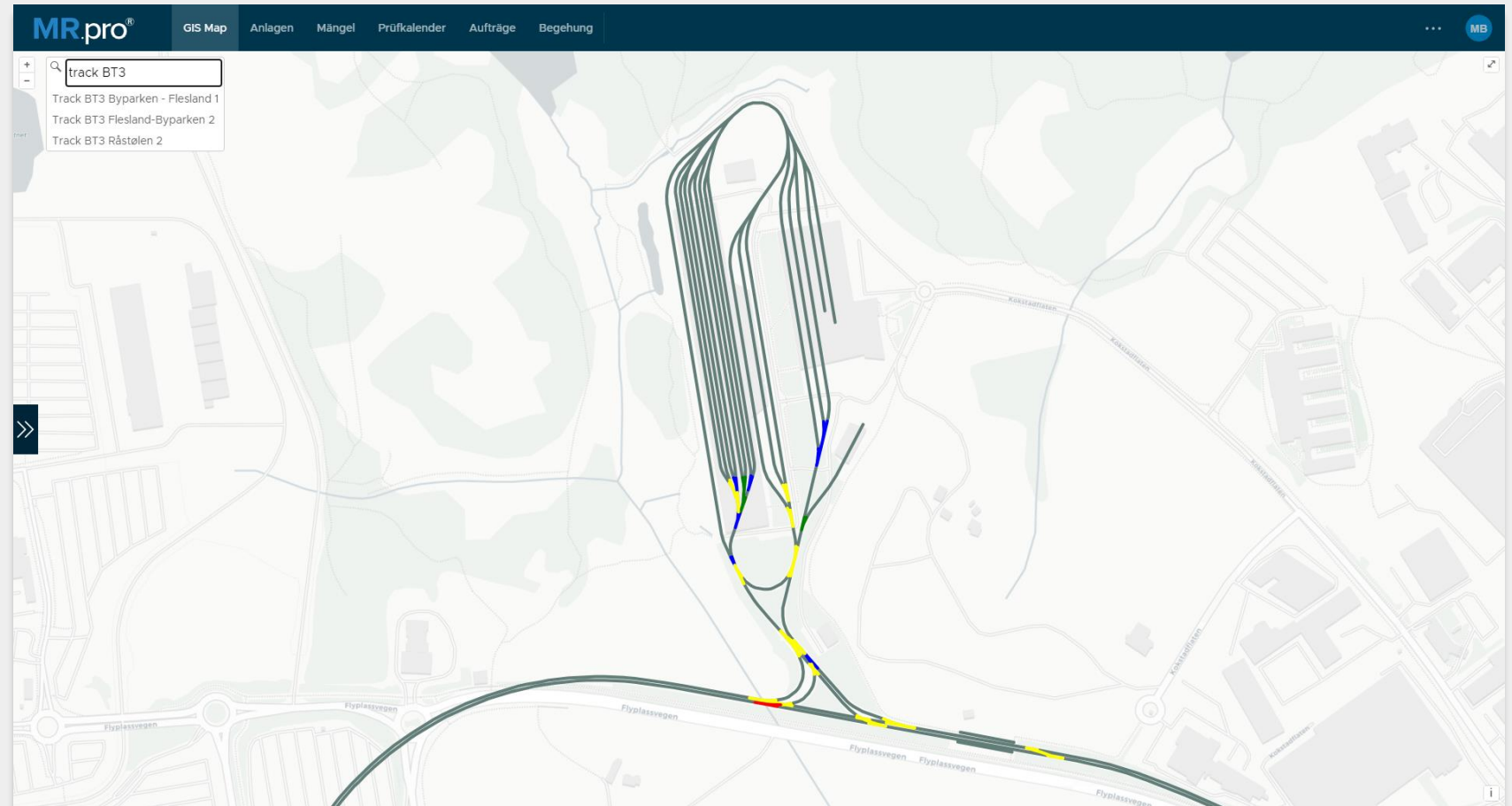
Gleis Trier 694

☒ KAV aktiv 0,872623

Objekt	Bezeichnung
Typ	Gleis
Bezeichnung	694
Bezirk	Föhren
Stellwerk	Trier
Ort	Föhren
Startpunkt Bezeichnung	GLA
Endpunkt Bezeichnung	WA A 689
Startmeter [m]	0
Endmeter [m]	415
Gleislänge [mm]	415
Leistungslänge [mm]	0
Anlagenklasse	2
Eigentümer	RSV
Kostenstelle	
Messfile	10694
Befahrung	○
Richtung	
Verantwortlich	
Objekt-ID	2006373

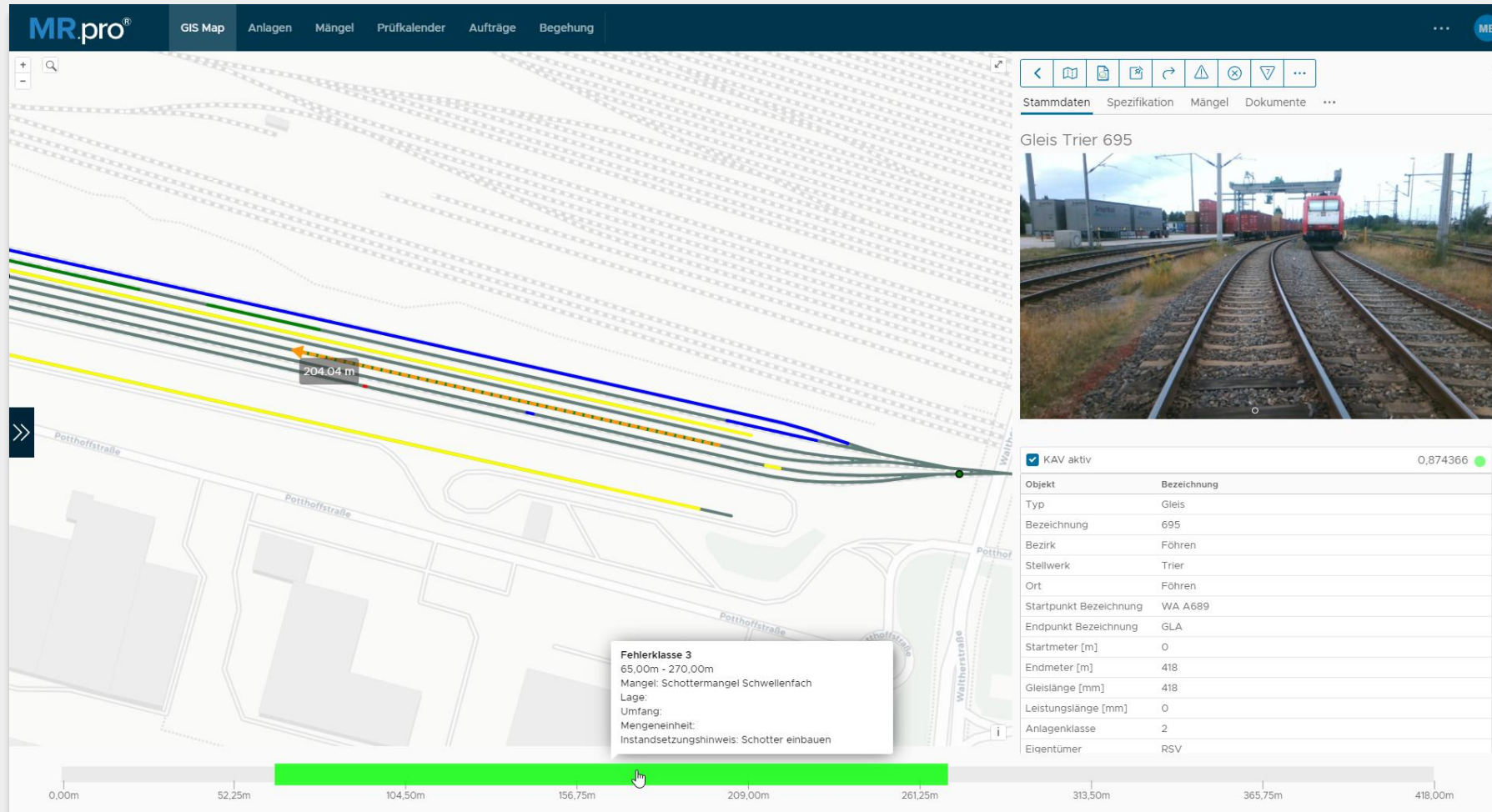
The entire Network at a Glance

The GIS Map Viewer gives you a network-wide overview. An integrated search function makes it easier to find individual objects or entire object groups.



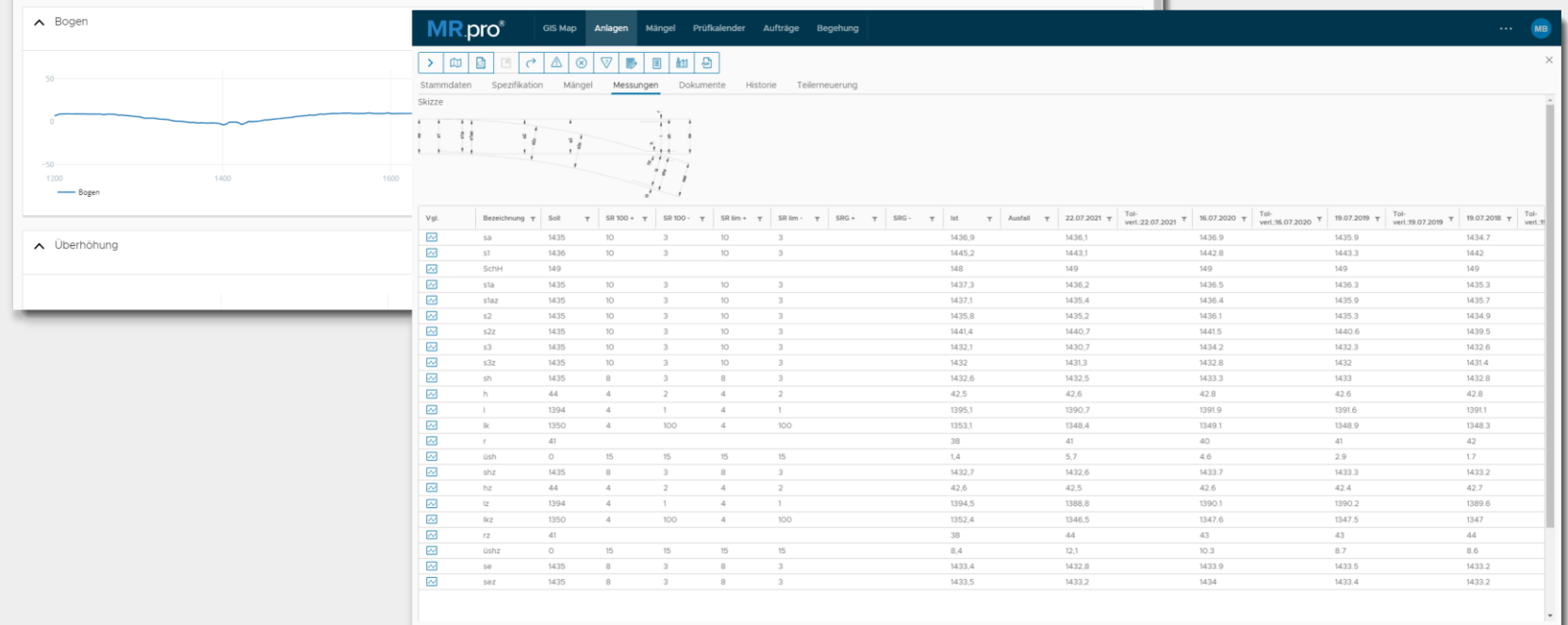
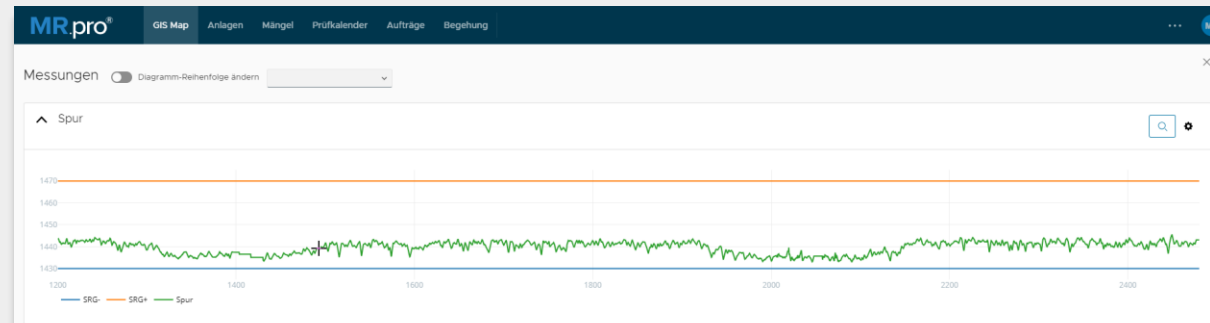
MapBox Carto light

Dynamic Segmentation - Defect Classes



Measurement Values

- Clear display of measurement results (track & points)
- Current or historical



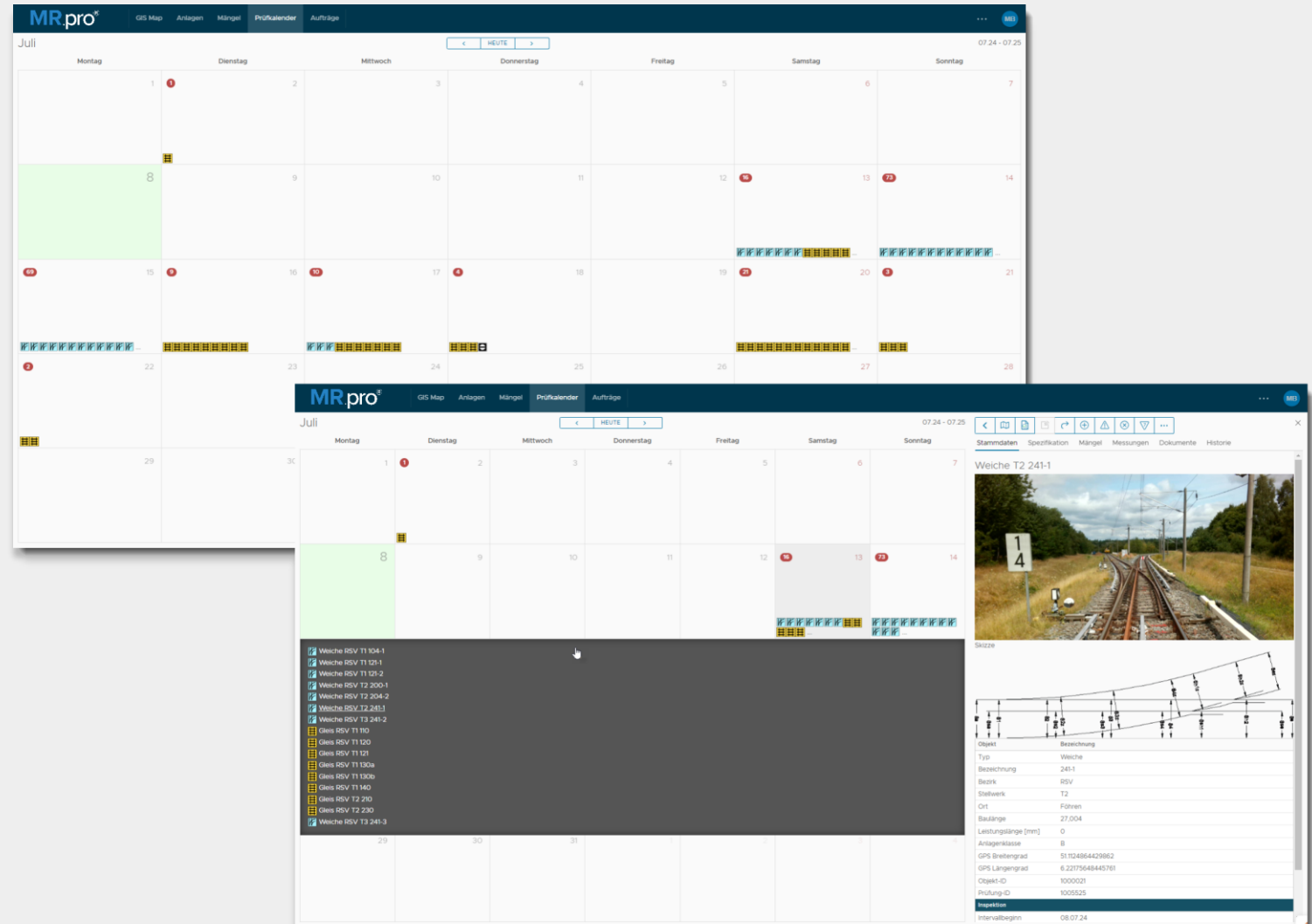
Life History

The entire history of a system at the click of a mouse. From installation to removal, all information about a system object is available.

Log	Medien	Pruefdatum	Pruefart	Lage	Mangel	Instandsetzungshinweis	Nicht_in_ordnung	Umfang	Mengeneinheit	Betriebsgefahr	Mangelfoto	Fehlerklasse	Auftrag	Termin
		14.09.21	Spurweiten									-1		
		14.09.21	Leitweiten									-1		
		14.09.21	Leitkanten...									-1		
		14.09.21	Rillenweiten									-1		
		14.09.21	Rillentiepen									-1		
		14.09.21	Durchfahrri...									-1		
		14.09.21	ggs.Höhenl...									-1		
		14.09.21	Längshöhe									-1		
		14.09.21	Richtung									-1		
		14.09.21	Bettung									-1		
		14.09.21	Schienen									-1		
		14.09.21	Herzstück									-1		
		14.09.21	Radlenker									-1		
		14.09.21	Schwellen	Zunge...	Holzsch...	Schwelle(n) erneuern		5	Stück		A1_CT_514 0...	3		
		14.09.21	Gleitstühle/...									-1		
		14.09.21	Stützknagg...									-1		
		14.09.21	Rippenplatt...									-1		
		14.09.21	Schwellens...									-1		
		14.09.21	Umschalt...									-1		

Maintenance Management

The task of maintenance management is to initiate and carry out all measures required for planned maintenance work and to monitor deadlines.



Order Planning

Overview of all planned maintenance activities

- Order list
- Time schedule
- Local reference
- Equipment, material & personnel cost recording

The screenshot displays the MR.pro software interface, which is used for order planning and maintenance management. The interface is divided into several sections:

- Auftrag erstellen (Create Order):** A table listing various maintenance tasks with columns for item number, status, description, location, and dates.
- Auftrag bearbeiten (Edit Order):** A detailed view of a specific order (00059) showing its status, location, and associated costs. It includes a table for personnel, material, and machine costs.
- Mängel (Defects):** A section for managing defects, showing a list of defects with columns for item number, location, and description.
- Objekte (Objects):** A section for managing objects, showing a list of objects with columns for item number, location, and description.
- GIS Map:** A map view showing the location of the objects and defects.
- Costs:** A section for recording costs, showing a table of costs with columns for item number, location, and cost amount.

The interface is designed to be user-friendly, with clear navigation menus and detailed data entry fields. It also includes a confirmation message at the bottom right: "Kosten erfolgreich gespeichert" (Costs successfully saved).

The summarized and evaluated inspection results flow directly into the further maintenance process, planning, budgeting and implementation as maintenance requirements.

[illegible]

Feedback

- With MR.pro, the documentation effort for order confirmation is very low, as no time-consuming double entry is required
- Automatic updating of documentation (inventory data & status data)

MR.pro®
GIS Map
Anlagen
Mängel
Prüfkalender
Aufträge

Rückmeldung
Mängel

☐	Datum	Instandsetzer	Von	Bis	Gattung	Stamm	Prüfart	Mangel	Lage	Umfang	Mengeneinheit	Fehlerklasse	Instandsetzungshinweis	Betriebsgefahr	Bild
☒	08.07.2024	Rhomberg Sersa Deutschland GmbH, Gleisbau, Dresden	261,9	262,3	Messwerte	Spurweite	Spurweite	SRG -				1	Schienenquerprofil schleiftechnisch instandsetz...	☒	
☐	DD.MM.YYYY		453,7	453,8	Messwerte	Spurweite	Spurweite	SRG -				1	Schienenquerprofil schleiftechnisch instandsetz...	☒	
☐	DD.MM.YYYY		515,9	515,9	Messwerte	Spurweite	Spurweite	SRG -				1	Schienenquerprofil schleiftechnisch instandsetz...	☒	
☐	DD.MM.YYYY		547,1	547,3	Messwerte	Spurweite	Spurweite	SRG -				1	Schienenquerprofil schleiftechnisch instandsetz...	☒	
☐	DD.MM.YYYY		577,6	577,6	Messwerte	Spurweite	Spurweite	SRG -				1	Schienenquerprofil schleiftechnisch instandsetz...	☒	

Medien hochladen (bis 50MB)

oder

UPLOAD

1 MANGEL RÜCKMELDEN

Firma	Datum	Von	Bis	Gattung	Stamm	Prüfart	Mangel	Lage	Umfang	Mengeneinheit	Fehlerklasse	Instandsetzungshinweis	Betriebsgefahr	Bildpfad	Auftrag	Termin	Auftragnr	Auftragsart	
	08.07.24	0	721	Schienen	Vignol	Schienen	Gratbildu...	links/rechts	2	mm	4	Schienenquerprofil schleiftechnisch instandsetz...	☐		☐				

Incident Management

Every malfunction, blocking or slow speed point can be documented, managed, commissioned and reported back.

The screenshot displays the MR.pro software interface for incident management. The main menu at the top includes options like GIS Map, Anlagen, Mängel, Prüfkalender, Aufträge, and Begehung. The left sidebar shows a list of incidents with columns for Typ, KAV, Sp, Lf, St, Bezeichnung, Bezirk, Stelwerk, Ort, Prüfdatum, and Messdatum. The right sidebar shows a detailed view of a specific incident, including a photo of the location and a form for recording details.

Incident List (Left Sidebar):

Typ	KAV	Sp	Lf	St	Bezeichnung	Bezirk	Stelwerk	Ort	Prüfdatum	Messdatum
...	0.89				690	Föhren	Trier	Föhren	16.08.21	16.08.21
...	0.903				691	Föhren	Trier	Föhren	16.08.21	16.08.21
...	0.904				692	Föhren	Trier	Föhren	16.08.21	16.08.21
...	0.971				693	Föhren	Trier	Föhren	16.08.21	16.08.21
...	0.873				694	Föhren				
...	0.874				695	Föhren				
...	0.993				696	Föhren				
...	0.993				697	Föhren				
...	0.79				70	Föhren				
...	0.778				72	Föhren				
...	0.72				76	Föhren				
...	0.79				81	Föhren				
...	0.813				82	Föhren				
...	1				A 693	Föhren				
...	1				A 694	Föhren				
...	1				A 695	Föhren				

Incident Detail View (Right Sidebar):

Störung bearbeiten

Datum der Störung: 21.08.2024

Zeit der Störung: 10:00

gemeldet durch: Muster

Art der Störung: Fahrkantenausbrüche

Schäden? ☒ Ja ☐ Nein

Prüfart: Schienen

Mangel: Fahrkantenausbrüche

Umfang: 300

Einheit: mm

Betriebsgefahr: ☐

Ursache bekannt? ☐ Ja ☒ Nein

Medien hochladen (bis 50MB):

Historie:

Datum	Zeit	Meldender	Stoerart	Pruefart	Mengeneinheit	Mangel	Erle
21.08.24	10:00	Muster	Fahrkante...	Schienen	mm	Fahrkante...	

STÖRUNG SPEICHERN

Document Management

The integrated document management system offers convenient, object-based allocation of all documents that arise during the life of a system - from acceptance certificates to drawings.

The screenshot displays the MR.pro web application interface for document management. The main table lists documents with the following columns: Typ, KAV, Sp, Lf, St, Bezeichnung, Bezirk, and Stellwerk. A right-hand pane shows a detailed view of a selected document, including its Name, Typ, Pfad, Beschreibung, Größe, Username, and Status.

Typ	KAV	Sp	Lf	St	Bezeichnung	Bezirk	Stellwerk
...	0,873				694	Föhren	Trier
...	0,874				695	Föhren	Trier
...	0,993				696	Föhren	Trier
...	0,993				697	Föhren	Trier
...	0,79				70	Föhren	Trier
...	0,778				72	Föhren	Trier
...	0,72				76	Föhren	Trier
...	0,79				81	Föhren	Trier
...	0,813				82	Föhren	Trier
...	1				A 693	Föhren	Trier
...	1				A 694	Föhren	Trier
...	1				A 695	Föhren	Trier
...	1				A 696	Föhren	Trier
...	1				A 697	Föhren	Trier
...	0				A1	Föhren	Trier
...	1				A1	Föhren	Trier

Name	Typ	Pfad	Beschreibung	Größe	Username	Status
Weichenplan p...	application/p...	00000003\$Weichenplan.p...		188110	mrpro.cloud Adm...	29.08
Lageplan.pdf	application/p...	00000004\$Lageplan.pdf		2258132	mrpro.cloud Adm...	29.08

Service Life Management

- The contents of the MR.pro® database contain all the information required for long-term planning > 5 years - in order to be able to make appropriate deductions:
 - Property type, operating load, configuration, condition development over time
- If reliable empirical values are available for a representative cross-section of properties, they can be used to derive average values for economic service life at assumed values, which represent the necessary input for service life management

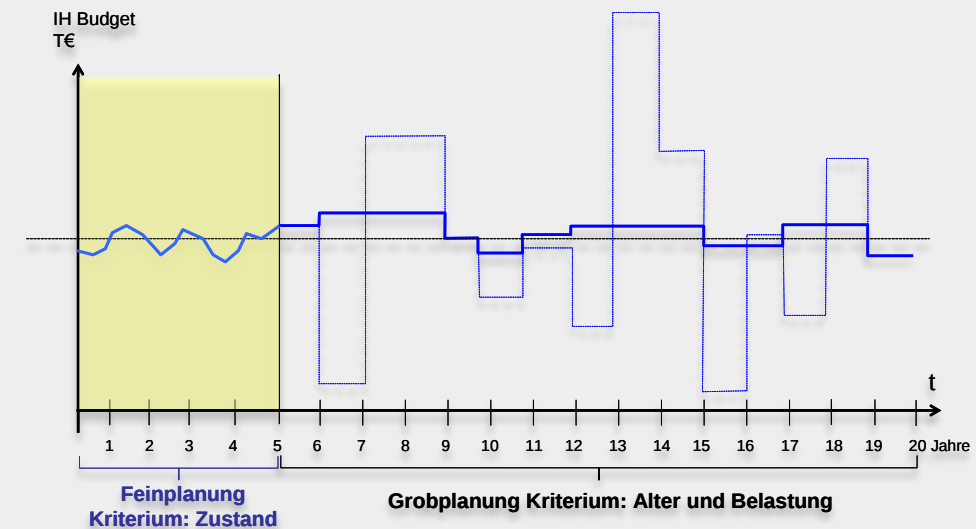
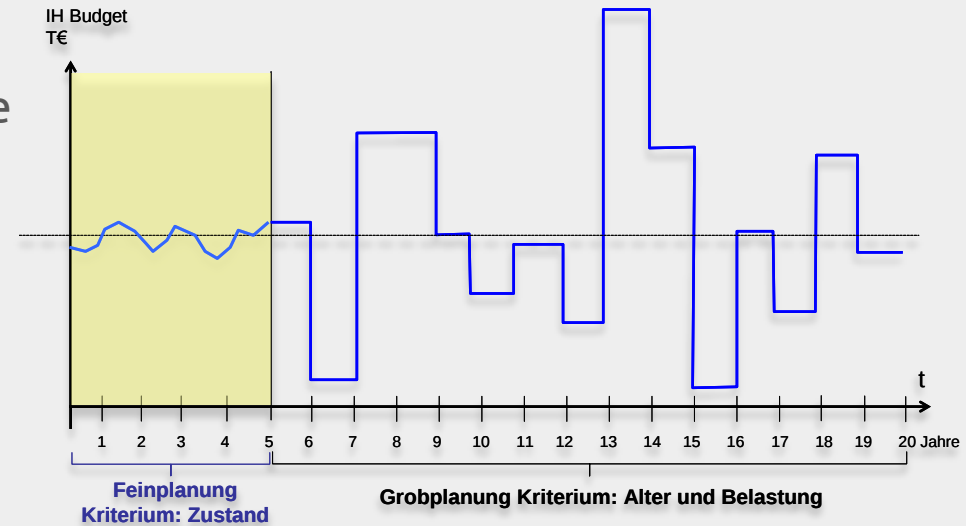
Manufacturing data
×

Manufacturer	
Date of manufacture	09/05/2024
Installation Company	
Installation Date	09/05/2024
replacement year	
useful life	
Dauer der Gewährleistung	2
Einheit der Gewährleistung	Year
Ende der Gewährleistung	09/05/2026

OK
CANCEL

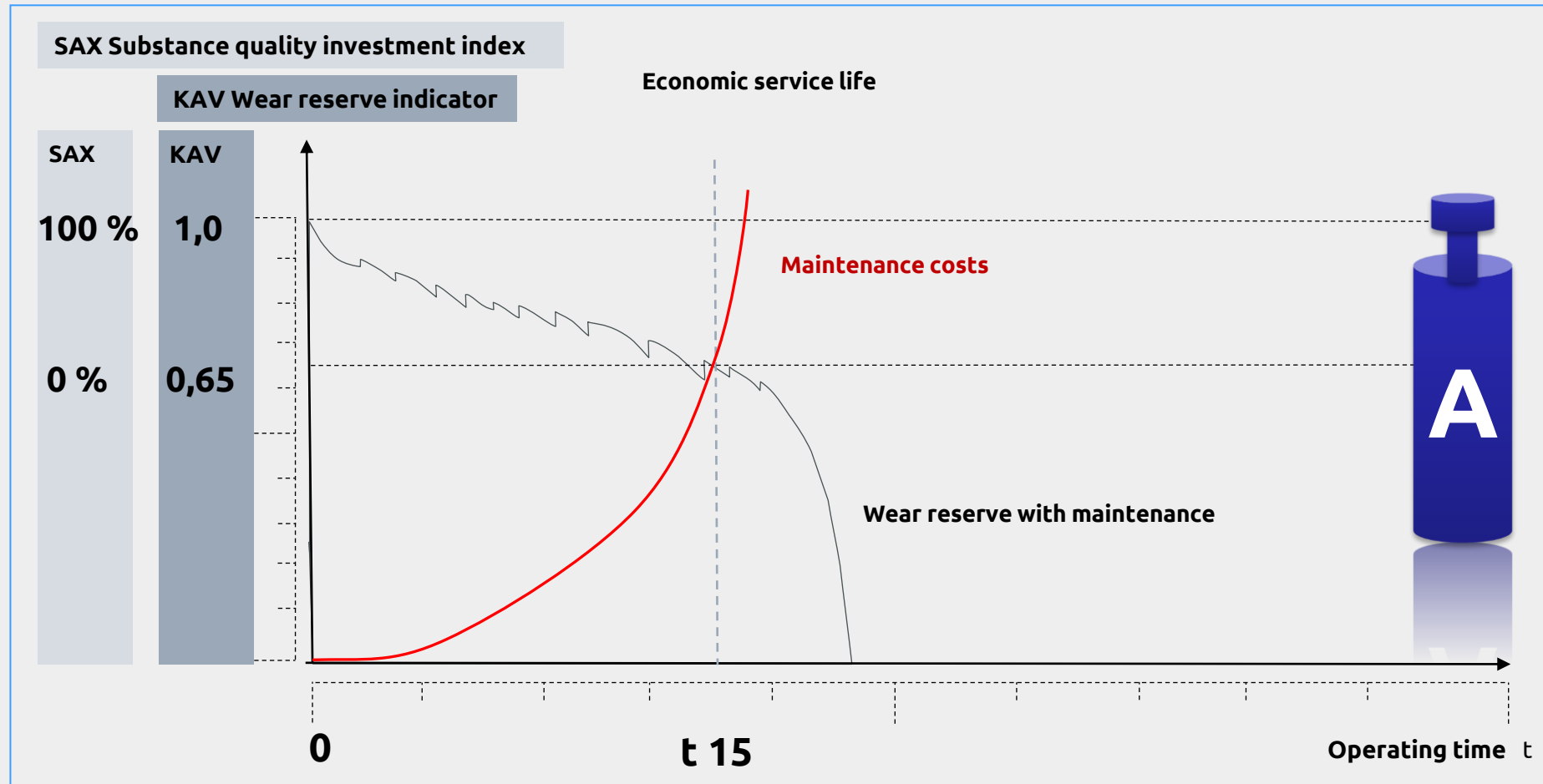
Short and Long Term Planning

- Empirical knowledge about the average service life of properties, differentiated according to the individual asset classes, enables a good forecast regarding the end of the economic useful life.
- Although long-term planning (t6 to t20) works with assumptions, it is sufficiently accurate as an early indicator in line with the Pareto principle (80/20).
- Early detection of fluctuations in demand in the maintenance budget
- Levelling out fluctuations in demand by postponing - bringing forward or shifting back
- **Avoids surprises in the long term!**

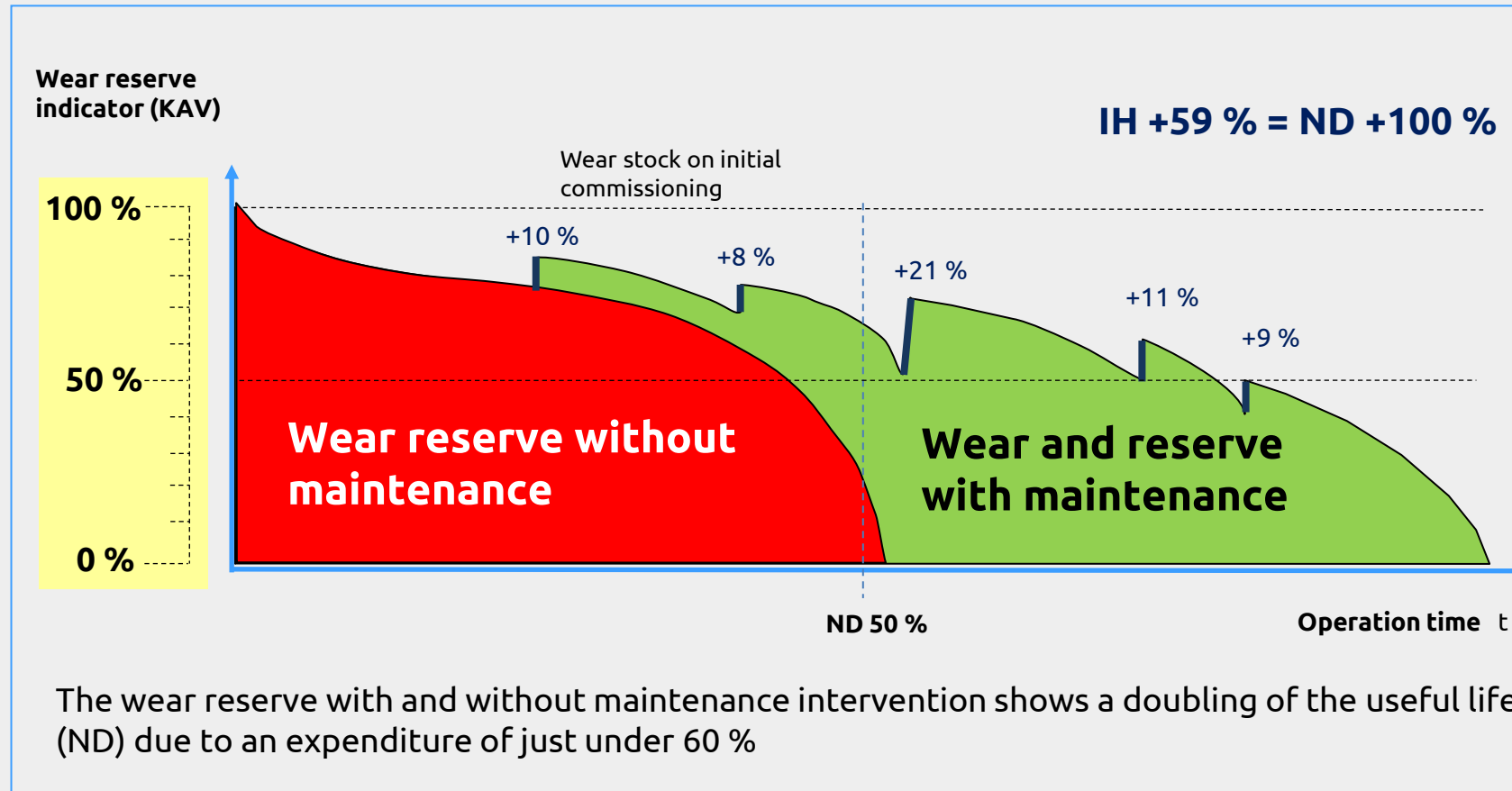


Wear Reserve Indicator - KAV ®

Switches and crossings and their load-dependent, empirically determined service life



Net Asset Value or Residual Wear on the System

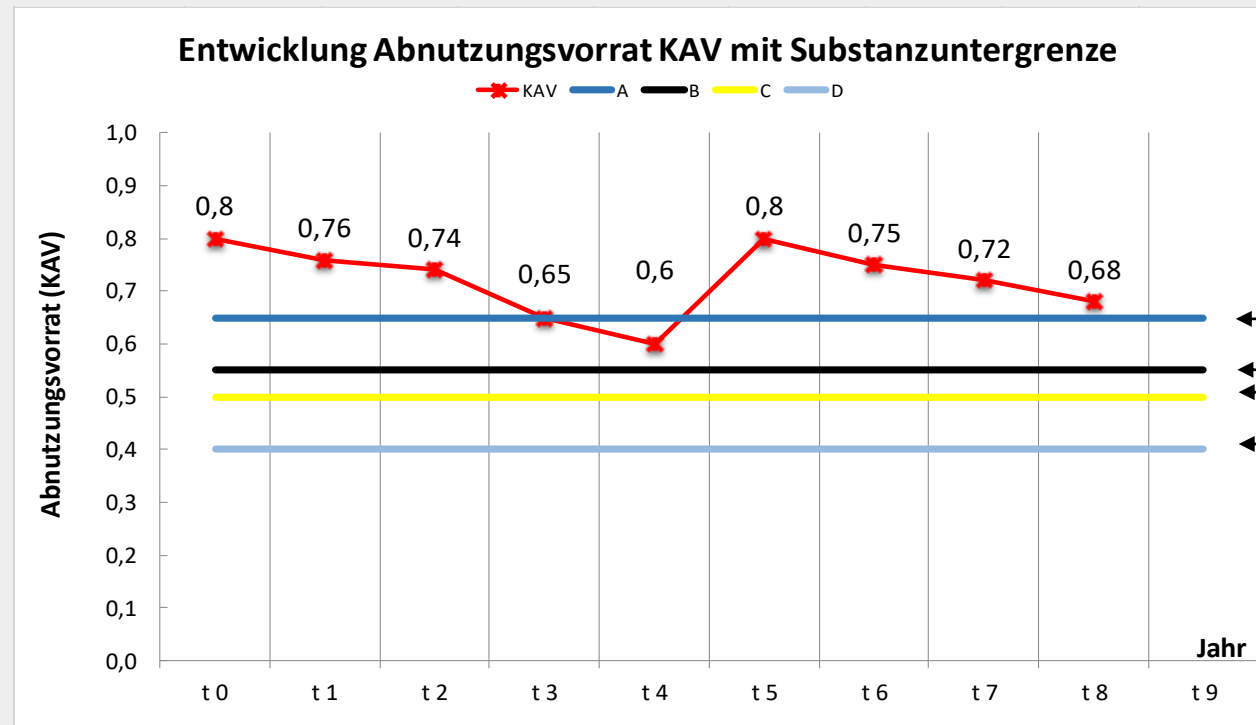


KAV® Graded According to Asset Classes

Example of load-oriented differentiated lower limits for substance quality

KAV: A = 0,65 B = 0,55 C = 0,5 D = 0,4

(must be individually adapted to the respective operational situation)

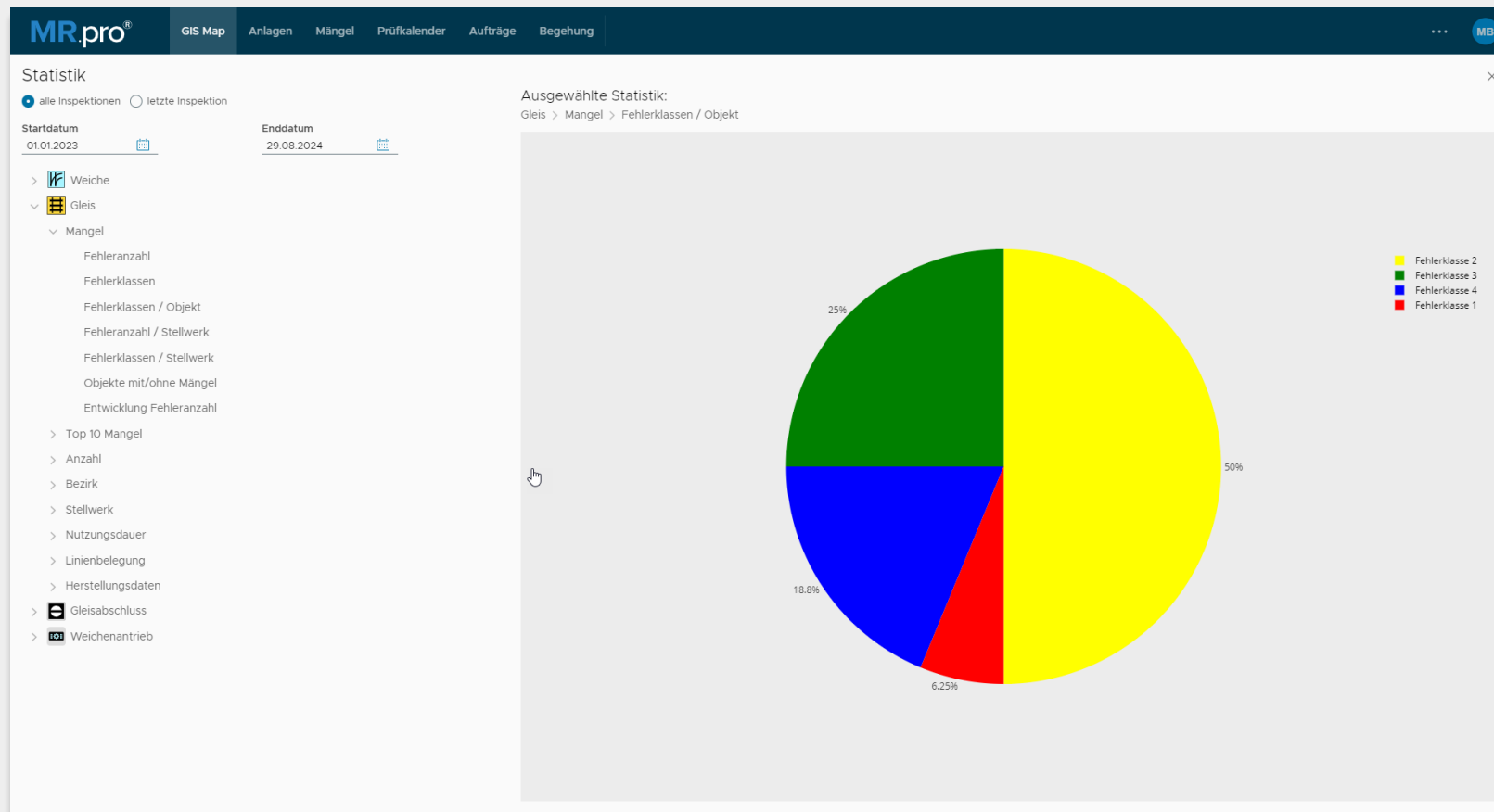


Asset classes



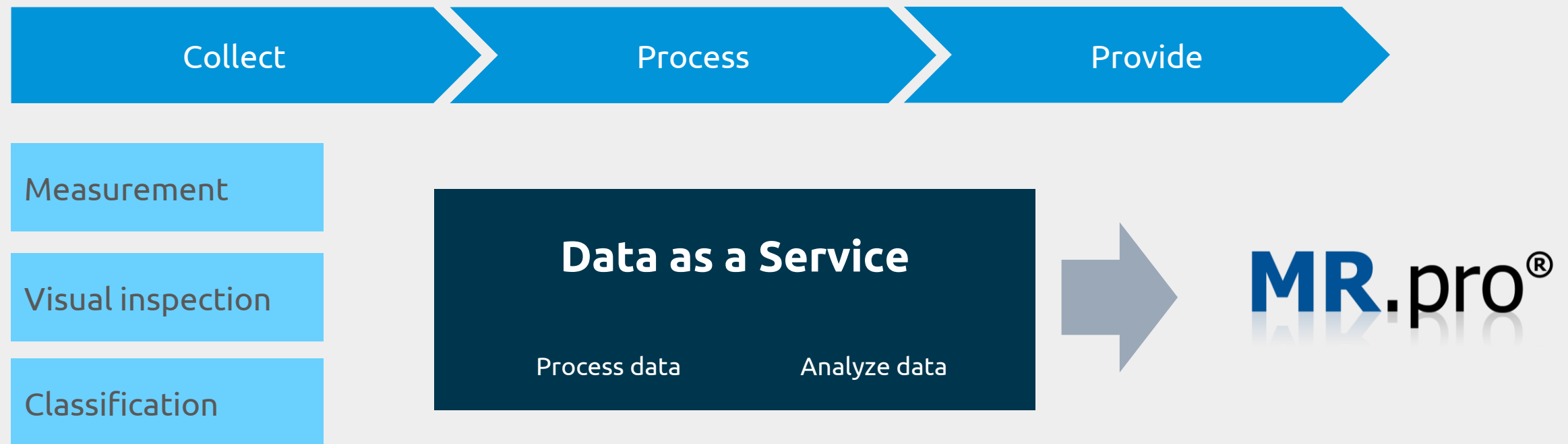
Statistics

Differentiated overviews that can be freely generated in terms of content make it easier to analyze weak points and make maintenance decisions.



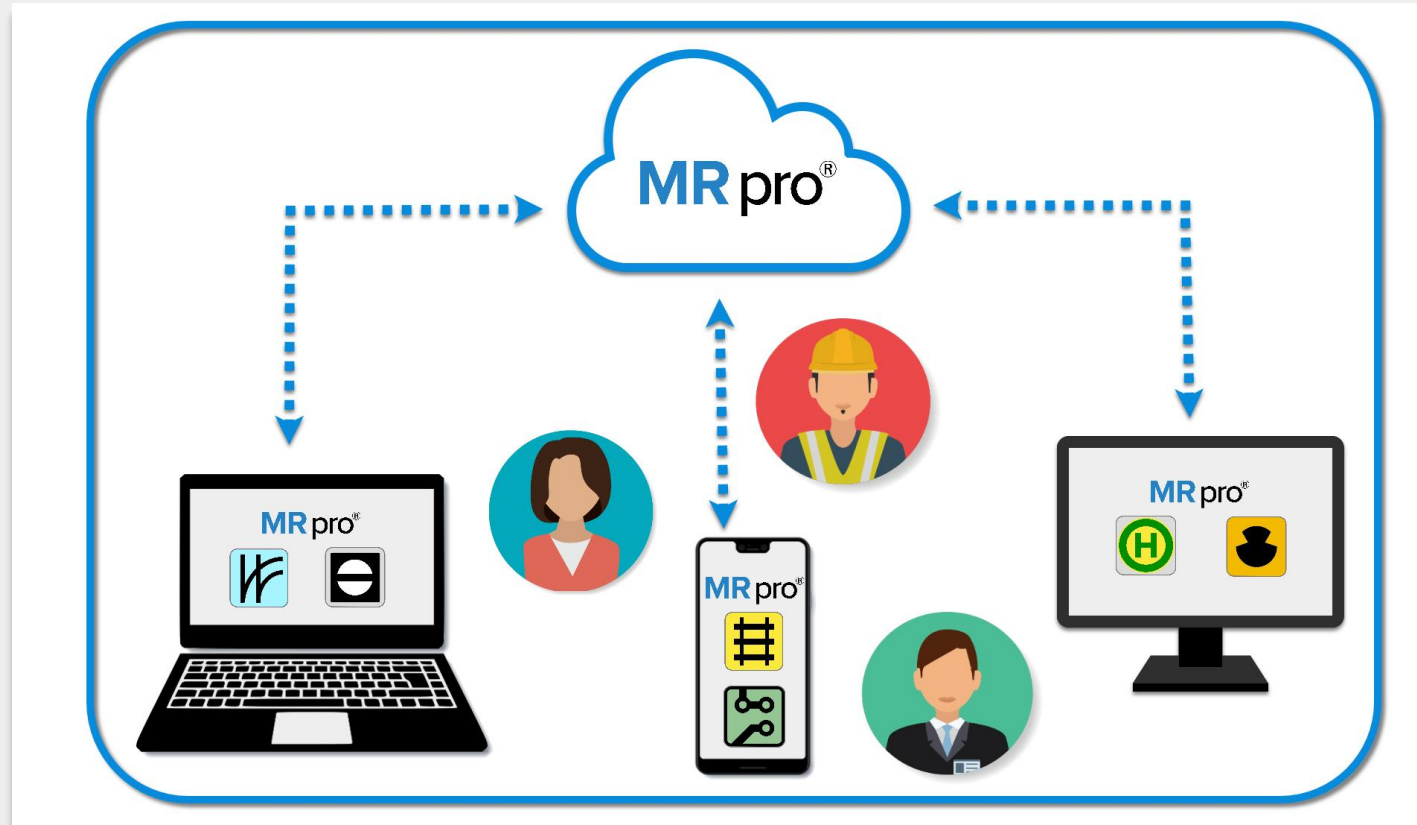
Data as a Service (DaaS)

is a data management that uses the cloud to enable the storage, integration and processing of data and provide analytics services.



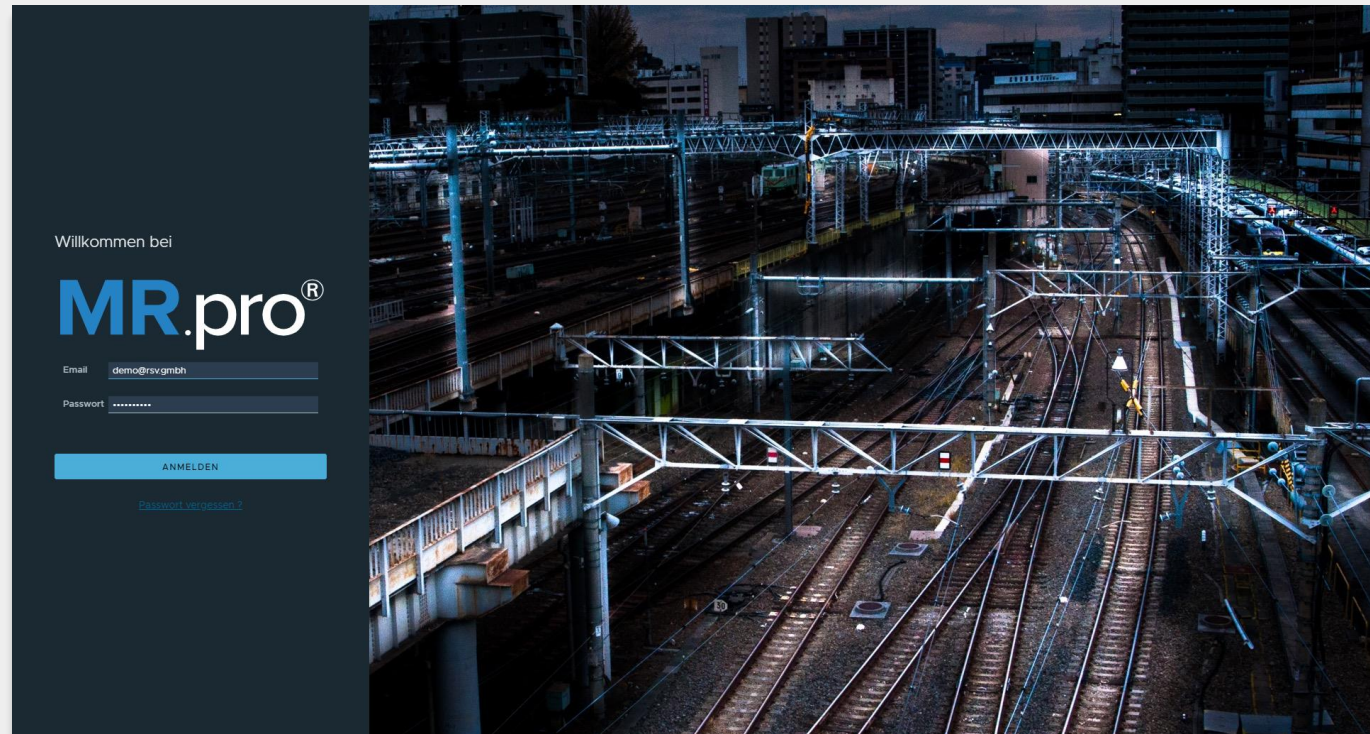
Goal: turning data into information

Platform-independent Structure



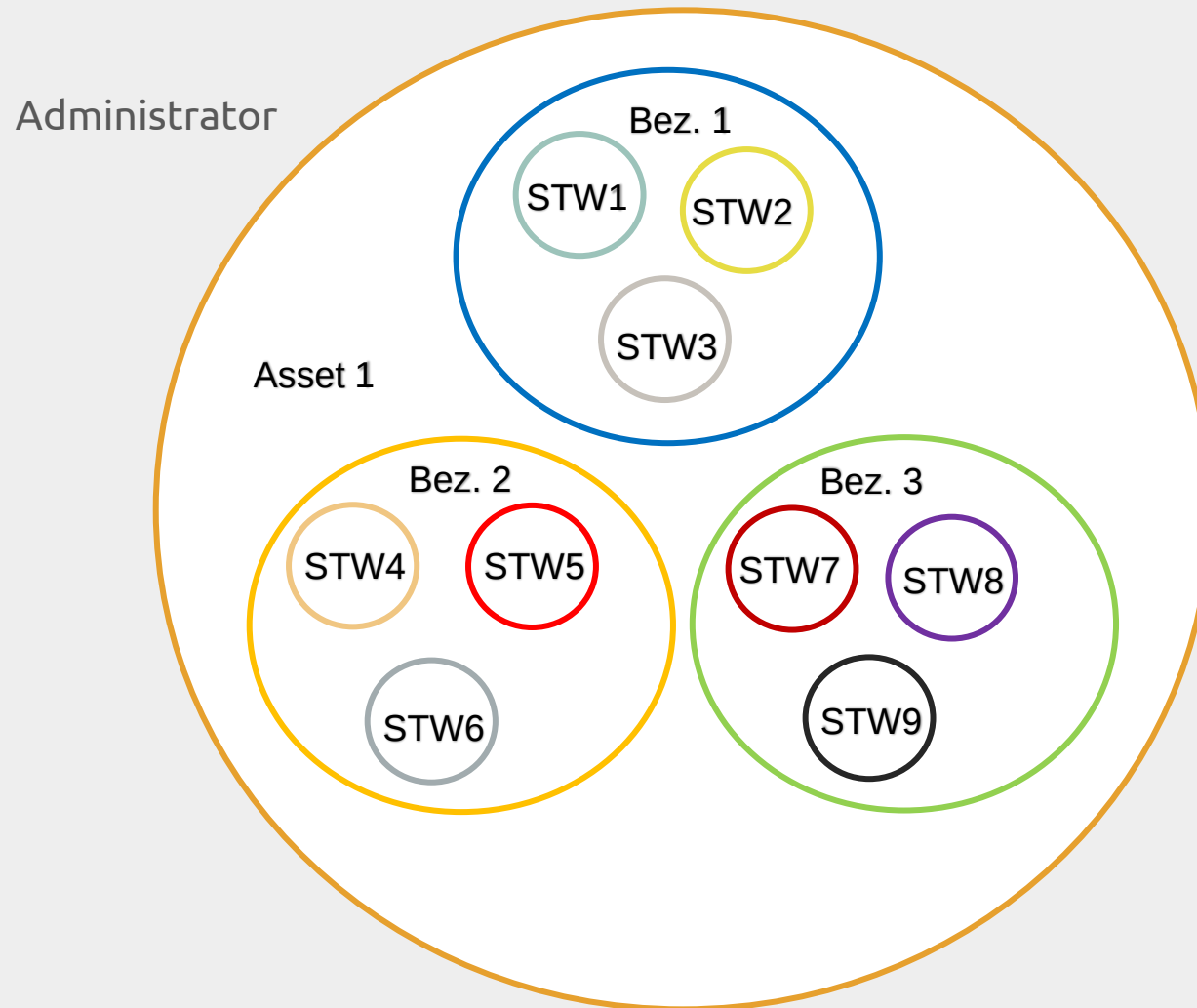
Access and Rights Management

- Multi-user system
- Online application
- Graduated user & rights management
- Multilingual
 - German
 - English



The integrated user and group management allows you to control authorization and access down to individual system objects.

Example: Group Assignment



Plant manager

- read / write Bez1-Bez3

District manager 1

- read / write STW1-STW 3
- read Bez.2 and Bez.3

District manager 2

- read / write STW4-STW 6
- read Bez.1 and Bez.3

District manager 3

- read / write STW7-STW 9
- read Bez.1 and Bez.2

Signal box supervisor 1

- read / write STW1
- read STW2 and STW3

.... etc.

„Simplify Database“ for Railway Tracks

- Some transport companies get off to a flying start in digital infrastructure data management because they use a “ready to work” solution with the combination of service and software and hardware delivery.
- RSV calls this combined solution “Simplify Database” for track systems, which creates a reliable data situation from inventory and condition information in the shortest possible time. First of all, the information required for maintenance planning and control is preconfigured with the operator. This includes details on assessment and classification procedures, interfaces and the further processing of condition information in planning and/or geographic information systems (GIS), which are determined in advance.

„Simplify Database“ for Railway Tracks

- During further implementation, RSV's specialists - also together with the infrastructure's specialist staff - create a complete database when taking stock of the track and switch systems.
- MR.pro is provided with all inventory and condition data in line with customer requirements. Our team of experts is available for all further inspections. Optionally, the inspection equipment can be handed over to the operator after intensive training and the “flying start” can be professionally supported and supervised.



Your Benefits

- The software was and continues to be developed directly by the user – by experts and with a high practical value
- Reduction of planning, control and documentation effort
- Reliable documentation of the operational and functional safety of the system, updatable and suitable as a life file
- Geo-referenced track graphics for system statuses, loads, designs and freely definable properties
- Digital data provision for decentralized and centralized access as well as long-term analyses and tracking of condition development
- Integrated deadline and warranty tracking
- Support for decision-making processes and prioritization
- Daily status reports and statistical evaluations Condition monitoring and weak point analysis
- Service life management and condition forecasting

References

- / Azienda Trasporti Milanese, Mailand 
- / Basler Verkehrs-Betriebe 
- / BASF Schwarzheide 
- / Bern Mobil 
- / Braunschweiger Verkehrs GmbH 
- / Bremenports 
- / CFL Luxembourg 
- / Compagnie des Transports de Strasbourg 
- / DB Fahrzeuginstandhaltung Krefeld 
- / DB Regio RheinNeckar 
- / De Lijn, Antwerpen 
- / De Lijn, Gent 
- / De Lijn Oostende 
- / Dresdner Verkehrsbetriebe AG 
- / EVB, Bremervörde 
- / Evonik, Marl 
- / Farge-Vegesacker Eisenbahn 
- / Grillo Werke AG 
- / Hafen Stuttgart GmbH 
- / Hamburg Port Authority AöR 
- / Hansebahn Bremen GmbH 
- / Havelländische Eisenbahn AG 
- / HEAG Mobilo, Darmstadt 
- / IFTEC GmbH & Co. KG Leipzig 
- / InfraLeuna GmbH 
- / InfraServ Knapsack 
- / Keolis, Dijon 
- / Keolis, Lyon 
- / Kölner Verkehrs-Betriebe AG 
- / Kasseler Verkehrs-Gesellschaft AG 
- / Lappwaldbahn Service GmbH 
- / LiA, Le Havre 
- / Magdeburger Verkehrsbetriebe GmbH 
- / Mainzer Verkehrs Gesellschaft 
- / Mecklenburgische Bäderbahn Molli 
- / Münchner Verkehrsgesellschaft mbH 
- / OMV AG Wien u. Burghausen 
- / RATP, Paris 
- / Regiobahn Bitterfeld Berlin GmbH 
- / Rhein-Neckar-Verkehr GmbH 
- / Rheinhafen Krefeld 
- / Rheinhäfen Karlsruhe 
- / RSAG Rostock 
- / Saarbahn Netz GmbH 
- / Schweizerische Rheinhäfen, Basel 
- / SinON, Celle 
- / Solvay Bernburg 
- / Stadtwerke Krefeld Mobil 
- / Städtische Häfen Hannover 
- / Teutoburger Wald-Eisenbahn 
- / ThyssenKrupp Logistics Services, Duisburg 
- / VAG Verkehrs-AG Nürnberg 
- / Verkehrsbetriebe Karlsruhe GmbH 
- / Verkehrsbetriebe Zürich 
- / Vossloh Rail Service versch. Standorte 
- / ...



„Audience Choice Award“ for MR.pro

Rhomberg Sersa Vossloh has won one of the coveted Innovation Awards at the renowned rail trade fair RailTech Europe 2024 with the “Audience Choice Award”. The company was nominated for its MR.pro® asset management software, which specializes in rail infrastructure and has been tried and tested for 20 years - and won.



Photo from left: Mario RAINER (Head of Software Development) and Sebastian MEYER (Managing Director of RSV) were delighted to win the “Audience Choice Award” for MR.pro®.

Thank you for your Interest

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SOLUTION

MR.pro®

MR.pro offers a holistic approach for all types of facilities. The software can be designed individually for the respective object type and freely scaled.

