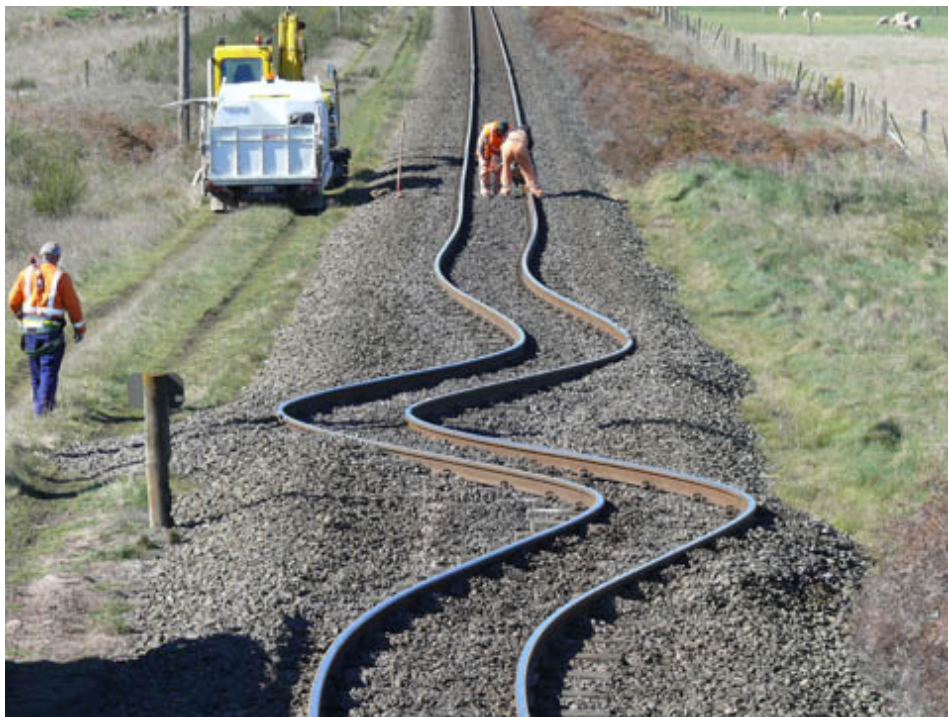


Market consultation

Support system handling rail incidents



Version	1.1
Date	12-06-2023
Status	Definitive
TN characteristic	TN409220

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1 Mission: Impact of rail incidents as small as possible!

2 February 2025. A winter storm has been predicted in the Netherlands: wind force 10 and more than 8 cm of snow in the northern part of the country. The timetable has been adjusted; There will be fewer trains. Breakdown crews are on standby. Everyone on and around the track is on high alert.

Around 07:00, the first storm-related reports arrive at the ProRail Incident Response (ICB) Rail Control Room (MKS) department: stranded trains, frozen switches and branches on the track. It is important to register all these reports quickly in our system and to alert our own teams, government emergency services (OHD) and other stakeholders (e.g. contractors). Both our own teams and the emergency services must go to the appropriate incidents to provide assistance. Information they gather on the spot is added to the system and this creates a picture of the situation and what is needed to get train traffic going again. All parties involved have access to what is called the common operational picture (COP) and are assigned tasks to perform. Forecasts are made and when tasks are completed, the parties involved can administer this in the system. Sharing of information via the system is done visually as much as possible, based on symbols. Users need to read as little text as possible.

The MKS employees are called more often in the course of the morning. Information also flows in via camera images, sensors and social media. In several places, overhead lines have been damaged by trees and flying debris. Now the MKS is heavily dependent on a system that provides a quick and accurate overview. Where are the main incidents? Where are our colleagues outside and where can they best be sent? Who does what?

Traffic control (VL) and train service management (TRDL) are also busy. They are concerned with train traffic and decide where it is still possible to run trains and which train series should be cancelled or diverted? They also get an important part of their information from the system.

In addition to employees inside, the system is also the most important source of information for employees outside. In the cold, snow and wind, they not only have to clear the track again, but also feed the system with the latest state of affairs on their phone or tablet. Gloves and poor visibility should not be an obstacle using the system.

At 11:00 it has become so busy that there are already hundreds of open incidents in the system. Simultaneously several new incidents are entered and existing incidents are provided with additional information, for example an adjusted forecast about how long it will take to complete all tasks for an incident. The system must now be robust and continue to deliver high performance. Hourglass symbols on the screen are out of the question. In addition, up-to-date dashboards must provide information so that an overview is maintained in the chaos. Based on the dashboard, a data analyst can make information and AI

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predictions about the coming hours and thus give the right advice with regard to the deployment of people and resources.

In the course of the afternoon the storm starts to ease and the temperature has risen to such an extent that the snow has turned to rain and what is left of snow and ice quickly thaws away. The system has passed this day with flying colours and supported at individual incident level, but has also provided a regional and national overview for all employees involved.

A day later, all relevant information was transferred to the ProRail BI environment. Analyses can be made, dashboards regarding KPIs can be established and individual incidents can be replayed like a movie to see where the handling or communication could have gone better.

The above sketch concerns a real scenario for which ProRail must always be prepared. The various stakeholders involved in Incident Management work together with ICT to guarantee adequate tooling for the future so that rail incidents can be resolved efficiently and effectively. ProRail is at a crossroads where it must be determined whether it will continue with the current tooling, whether it needs to be overhauled or even (partly) replaced by other tooling.

The purpose of this market consultation is to:

- identify which market parties provide software to support (part of) the handling of rail incidents
- Map out to what extent these parties and tooling are in line with the operational pressure and (desired) working method of ProRail,

1.1 ProRail at a glance

ProRail B.V. is responsible for the railway network of the Netherlands: construction, maintenance, management and safety. Employees ensure that every day, 24/7, 1,200,000 passengers and 100,000 tons of goods arrive at their destination, with 6550 trains on more than 7000 kilometers of track. The railway network is rightfully the beating heart of the mobile Netherlands.

ProRail is working on the accessibility of the Netherlands by ensuring an optimal rail network. We distribute the capacity on the track, regulate all train traffic, build and manage stations and build new tracks. ProRail also maintains existing infrastructure such as the railway, switches, signals and level crossings.

Unfortunately, the rail network is not immune to disruptions. Infrastructure and equipment can break down, whether or not as a result of accidents, vandalism, the weather or other circumstances. This happens more than 5000 times a year. At such times, it is important that the impact for (freight) carriers and passengers is as low as possible, and that the normal timetable can be resumed as soon as possible. Within and outside ProRail, various parties are working together to achieve this, with the support of a system for handling rail incidents

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(hereinafter referred to as the system with working title OSASIN (Support System Handling Rail Incidents)).

1.2 Ambition: An OSASIN system based on a busy storm day

The current system that ProRail uses to support the handling of rail incidents was never designed with a busy storm day as a starting point. The consequences of this are that performance, overview and support are experienced as insufficient on these days. Over the years, adjustments and improvements have been made to the tooling, but ProRail is running up against the limits of what is possible with the current system. In addition, the current system is also difficult to maintain, and increasingly difficult to comply with the ProRail technology roadmap.¹²

ProRail also sees a strong growth in passenger and freight transport towards 2030 and beyond. More trains also means more incidents, and the incidents that take place will cause more and more customer disruption.

Our ambition is therefore to have an OSASIN system in use at ProRail by 2026/2027 that is designed to effortlessly provide adequate support even on busy days, both with regard to individual incidents and provide an overview of all incidents throughout the country. The system supports, among other things, a quick intake and alarming, the concept of a shared image and flexible configurable task handling. The system supports various user groups, each with their own needs, e.g. with regard to the user interface. The system must be both indoors and outdoors, on the desk and in the hand, during all sorts of weather.

1.3 Scope

The total scope is clear in the 3 figures below. First of all, the value chain of support for the handling of rail incidents is shown:³

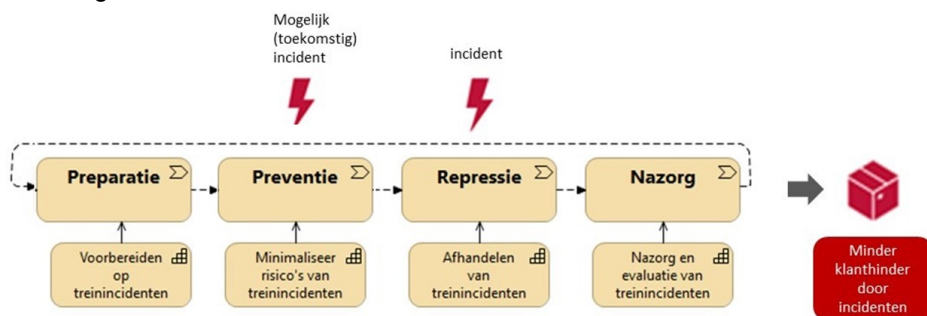


Figure 1: Value chain support for handling rail incidents

¹ Situator from Supplier Qognify, SWAPP from supplier Geodan, integration via various customizations. Overall system name is SpoorWeb (SW).

² This has also been confirmed in a report conducted in 2019 through an external party.

³ This value chain is derived from the value chain as used at various Dutch Emergency Authorities

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The value chain is represented as an iterative PDCA (Plan Do Check Act) process, where preparation = Plan, prevention and repression = Do, aftercare = Check and from the aftercare to the preparation / prevention / repression is the Act. In this way, the process continuously improves and the value that is delivered can be continuously increased.

The scope of this RFI focuses on repression and to a small extent on prevention. The latter concerns the incidents that must be able to be recorded in the OSASIN system but have not yet caused disturbance, and, if disturbance can be prevented, fall under prevention. An elaboration with the tooling used in the current situation is shown in Figure 2.

Scope/omgeving Ondersteuning Afhandeling Spoorse Incidenten

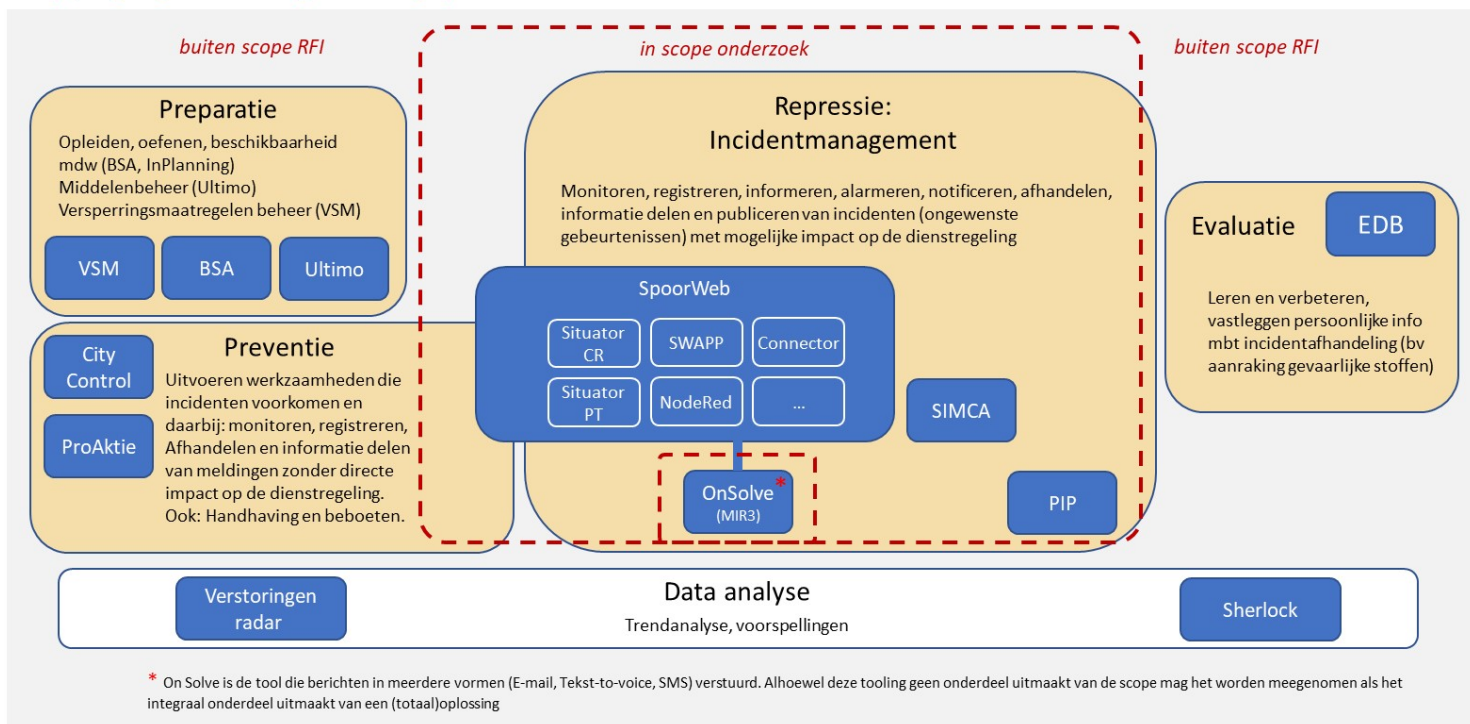


Figure 2: scope RFI in relation to value chain and environment. For an explanation of the information systems (blue blocks) see Annex 1

ProRail

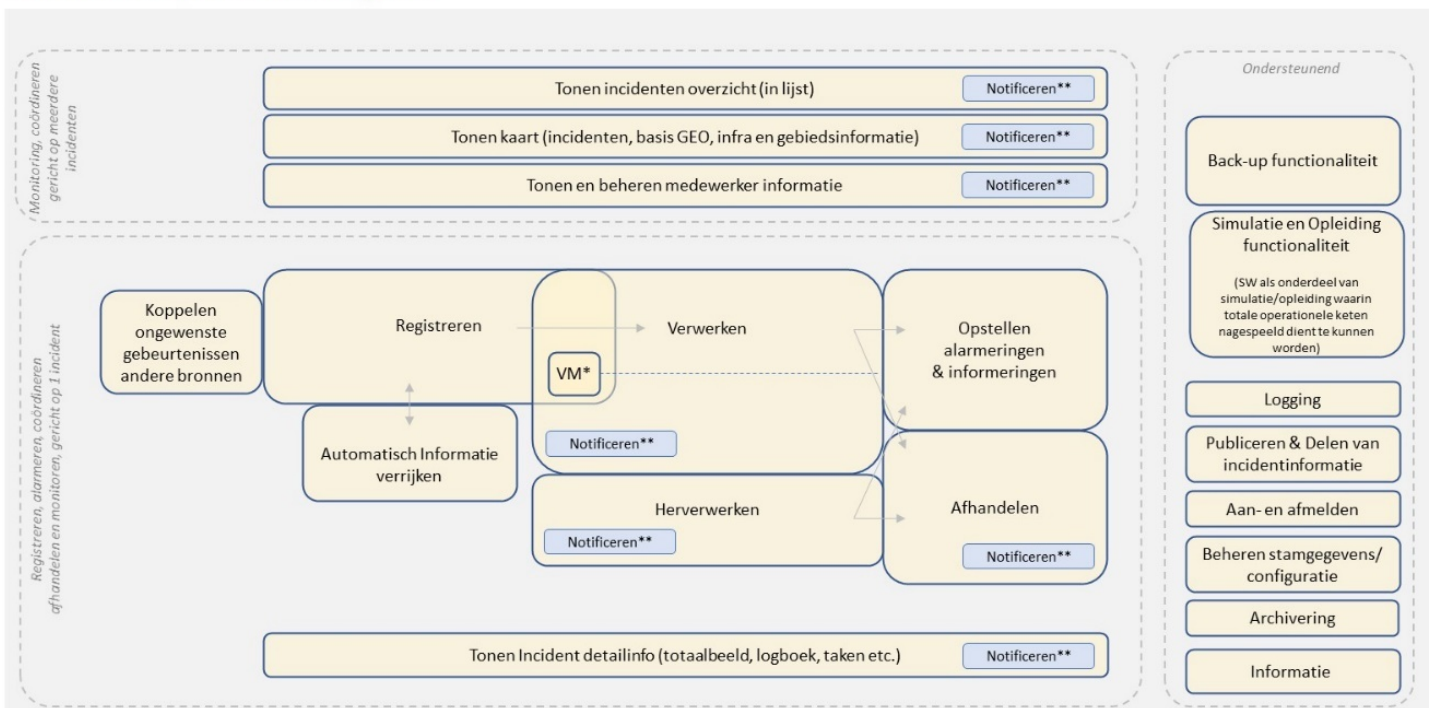
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What is in scope can also be displayed in terms of functionality. See Figure 3. This concerns the desired situation.

Functionele decompositie Incidentmanagement



*Voormelding doen (stippellijn naar Alarmeren geeft aan dat voor het verspreiden van de voormelding functionaliteit van 'alarmeren' wordt gebruikt

**Notificeren van gebruikers als gevolg van relevante wijzigingen in het dossier

Figure 3: functional scope RFI

Explanation figure 3:

There are roughly 2 modes in which an employee is involved in incident management: The first is monitoring and coordinating across multiple incidents, and the second is actively working on 1 incident (including registration, coordination, handling).

The functionality is therefore divided into these 2 blocks (the gray dotted lines mark these blocks). As a third block, there is a set of supporting functionality.

The monitoring and coordination block across multiple incidents is aimed at having an overview of the total state of affairs in a region or the entire management area of ProRail (including relevant areas abroad). The user must be able to form a quick picture of the situation in the country with these overviews. In addition, an overview is also desired with regard to the deployment of the ProRail ICB field service: who is present where (possibly linked to an incident), in what role and with what means (cars, equipment). Finally, there should also be an overview of the infrastructure that ProRail manages (rail, signals, switches, tunnels, access locations, etc.), the different areas (e.g. OHD, contractors, TRDL)

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and the general topography (roads, rivers, cities, villages, etc.). Users like to be kept informed when the situation changes, e.g. a new incident or a changed forecast. In the model this is called 'notifying' and it comes back in several places. Users would like to be able to set when and how they are notified.

Working on 1 incident is drawn as a process that is drawn from left to right in the model. There is a wish that a reporter (often TRDL, but can also be a third party or a system) can directly convey information related to the incident through an interface. This saves both time for the control room track employee (the one who does the intake) and the reporter (the TRDL then experiences his / her peak workload). Based on a new notification, the registration is made. While the control room employee enters all kinds of data, information is automatically searched to enrich the incident (e.g. train information based on a train number). If necessary, a pre-notification is made on the basis of some basic data. This allows, for example, ICB employees to (get ready to) go on site.

As soon as the intake contains sufficient information, it can be 'processed'. It is now determined which tasks must be performed and which roles must do so. In addition, it is determined who should be alerted and informed and the messages are drawn up (possibly adjusting and sending them is again a task). In the handling, all roles (MKS, employees outside, logistics employees, carriers, etc.) see which tasks they have to perform and can enter information related to those tasks.

If there are major changes during the handling, it can be decided to reprocess: the tasks and roles are redefined. During all these activities, users can view information related to the incident, such as the state of play, what tasks have been performed, and what the prognosis is. This is the previously mentioned Common Operational Picture (COP).

1.4 Problems or dilemmas

The handling of rail incidents as carried out at ProRail has characteristics of and interfaces with Incident Management at other organizations such as government emergency services and large logistics companies (think of Schiphol and the Port of Rotterdam Authority), but at the same time is also very specific. There will also be similarities with how fellow Infra Managers in Europe and the rest of the world deal with rail incidents, but due to the specific characteristics of the Dutch railway (short distances, a very extensive network for the surface of the country with many connections) it is questionable whether tooling that works there can also be used at ProRail.

The dilemma that arises is: will ProRail settle for a (possibly cheaper) standard product that is very stable but where the organization has to adjust the way of working to the tooling, or does ProRail want a tailor-made product where we get exactly what we want, but at a price, more difficult to maintain and the danger of vendor lock-in?

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1.5 Reading guide

This is a market consultation to support the handling of rail incidents for ProRail.

This document describes the process by which ProRail requests parties.

Chapter 2 discusses the market consultation in more detail: what exactly is ProRail looking for and what requirements must a solution meet.

Chapter 3 describes for each phase of the market consultation which steps will be followed, which documents parties must submit and how all submitted documents will be assessed by ProRail.

Chapter 4 contains an annex with background information on the systems used in the current situation.

The questionnaire containing the questions that suppliers must answer is included in a separate document.

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2 Explanation of market consultation and questionnaire

ProRail needs a new view on the market with regard to automated support for the handling of rail incidents, and specifically COTS solutions. Although ProRail is open to new ideas, the handling of rail incidents is a process with many different parties involved (internal and external). Therefore there is a limit to the flexibility that exists to work differently. In addition, the reason for doing this research is mainly a technical one (which has translated into all kinds of functional limitations). The following explanation therefore sometimes outlines in reasonable detail what an OSASIN system ProRail is looking for. However, we also invite parties to respond who have a completely different view on the support of the handling of rail incidents and are convinced that they can offer ProRail a good solution.

In the following sections, important functionalities and/or starting points will be indicated for each functional sub-area (see figure 3 discussed earlier).

2.1 Incident list overview

Users of the OSASIN system must at all times have an overview of the incidents that are currently taking place in list form. In addition, certain user groups must be able to easily view recently closed incidents. Users must be able to filter, group, and sort the incident list. Each incident in the incident list is shown with the most important information for that user group. These include the location, the time, the incident type, train(s) involved and the forecast. Depending on the user group, the file number, the TIS (Train Incident Scenario) and the logistical consequences/handling can also be shown.⁴

Users must be able to search for an incident (e.g. by location, incident type, file number or time). An incident must be able to be selected from the list, after which detailed information is shown / follow-up actions are possible.

An example of a filter is: only show incidents in which the user is involved or that affects the user.

As soon as there are (important) updates to an incident, this must be clearly indicated to the users. As soon as there are tasks for the user on this incident, this must also be indicated. The latter is especially important for the user groups that are actively working on the incident.

In addition to the incidents being shown in list form must also be able to be displayed simultaneously in 1 image on a map (see section 2.3).

⁴ The TIS is used in the current situation. It is a matrix (1.1 to 5.4) and a combination of type of incident (digit before the dot) and the impact (digit after the dot). It is not certain whether this format will continue to be used in the future.

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2.2 Dashboard

An important new wish is that current (real time) dashboard information is also available based on the incident list, MKS employee information and ICB outside employee info.

Examples of desired info:

- Incidents:
 - How many open incidents there are currently, including filtering for certain types of incidents
 - The forecast of how many and which incidents expire within x minutes.
- MKS staff info
 - How many MKS employees are there in this service
- ICB outside employee info
 - How many ICB field employees are there in this service, divided into different roles, e.g. General Leader (AL), Team Leader (PL) and Team Member (PLL). Note that 1 employee can have multiple roles.
 - What competencies do the employees have in this service and in what quantity.
 - Of both mentioned above: how many are occupied and how many free for new incidents.

2.3 Incident map overview

Users of the OSASIN system must at all times have an overview of the incidents that are taking place at that moment in map form. The map must be able to show an (in principle) unlimited amount of geographical data, from unlimited sources. Among other we want to see:

- Basemap layers Netherlands
 - Topographic grey/colour
 - Openstreetmaps
 - Aerial photograph
- Infra
 - Rail network, signals, switches, access, technology, level crossings, works of art
 - Infra status/availability
- Area divisions
 - From a.o. ProRail departments, safety regions, OHD and contractors
- Incidents
 - With incident type icon at the incident location to indicate
- Trains
 - Current position, including movement
 - Indication reliability info (based on source, last report, etc.)
- Weather
 - Temperature, wind (direction), precipitation, particularities

Furthermore, the following must be possible:

- All layers must be able to be switched on and off independently by the user.
- More information is visible from a zoom level that can be set in configuration

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- By clicking on an object in the map (incident, infraobject, area) additional information can be displayed. By clicking on an incident selected on the map, follow-up actions can be performed.
- Infrastructure objects and areas that have a certain status or for which a specific handling/comment has been entered can be shown differently. If selected (by clicking on the object) the additional information will be displayed.
- If multiple incidents are geographically close to each other (taking into account the zoom level), a number is shown with the number of incidents. If clicked, the underlying incidents are displayed.
- An incident can be created from a location on the map (point, line or plane)
- Select an area on the map and select all trains within it and include them in a new incident

One wish is to be able to show schematic maps as well. Schematic maps are maps that are not necessarily to scale, but are mainly aimed at showing a complete set of information in 1 window. For example, objects are shown larger or in a different place than in reality. Schematic maps often show only limited or no basemap layers at all.

2.4 Display and manage employee information

Mandated users of the OSASIN system must at all times have an overview of the ICB 'outside' employees on duty in map form. Additional information is given in list form. The following rules apply:

- Due to privacy laws, only the approximate location of employees can be shown. The exact location may not be deduced by users of the map from the visualization, with the exception of deployment in the event of an incident. The inaccuracy must be configurable, or at least relatively easily customizable.
 - Note: the exact location is known in the system for determining the employees to be alarmed and the approach route.
 - The location must be determined based on information from TomTom Webfleet. The wish is to possibly do this in the future on the basis of Walkie-talkie or other hardware/software combinations.
- The system must be able to deal with rules that exist with regard to consignment services, for example that consigned employees may only be shown once they have been called for an incident.
- As soon as several employees are present at (approximately) the same location, a figure is shown with the number of employees at that location.
- For each employee, it is shown (immediately or after clicking) what his / her status is, whether and in which incident he / she has been deployed and what competencies he / she has.
- Information that may change in the service or per service, such as status or deployment, must be easily changeable. Information that does not change often (such as role, competence) must be changed via the authentic source and may not be (or only temporarily) modified in the OSASIN system.

Non-mandated users should never see this information in connection with privacy legislation.

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2.5 Example list and map view current system

Figure 4 shows an image of the list and map view in the current system. At this level, the rail network is shown light blue, incidents light yellow with red borders (different shape and symbol per incident type) and the ICB employees as grey hexagons (due to privacy, their exact location is not shown).

The image is not intended as a requirement for what the UI should look like, but gives an idea of how it is now displayed and is complementary to the texts described in the previous paragraphs.

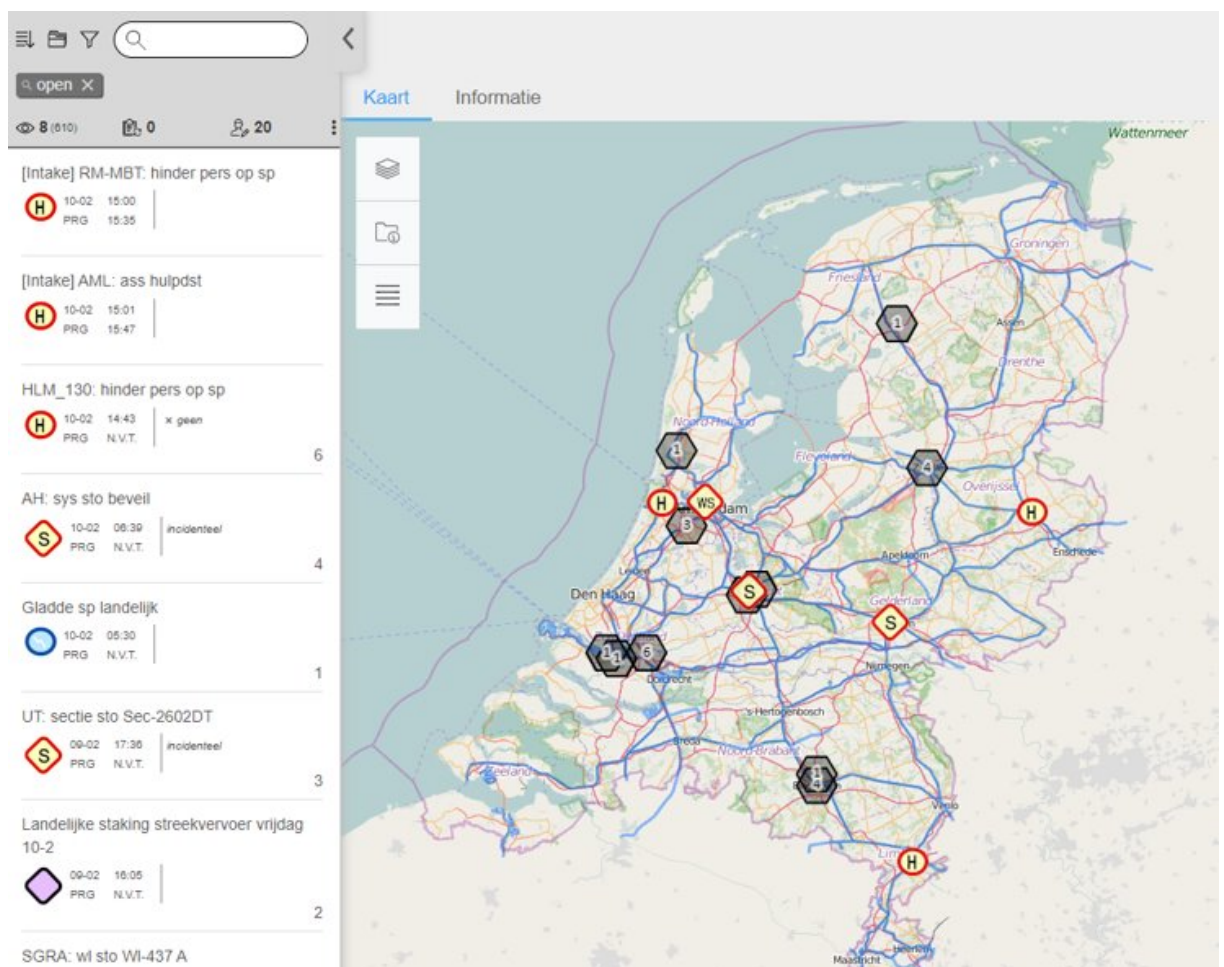


Figure 4: Current system list and map view

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2.6 Import incidents from other sources

In the current situation, the vast majority of new incidents come in over the phone. In the vast majority by the Train Dispatcher.

It is expected that in the future more and more automated notifications will come of possible incidents. Links with other emergency services are also provided. Incident information can then be exchanged with external parties.

The wish is therefore to have a 'front portal' in which all these incidents are stored and displayed. It should be possible to promote these incidents to incidents in the OSASIN system in 2 ways:

1. Automatically, via workflow/AI-like solutions
2. Manually by an MKS employee

On the one hand, the 'front portal' must be open to incidents from different sources (both internal and external) with different formats, and on the other hand, it must be able to store them in a generic structure. The 'front portal' notifications must also be able to be shown in a map, again with filters, sorting, grouping and search functionality. Consider, for example, showing only the incidents from 1 particular source.

It should also be possible to manually add incidents in the front porch. This can be very useful functionality for days as described in the introduction, where new incidents need to be registered quickly (based on some data). Later, the system or manually determines in which order they are offered to be included in the OSASIN system. Please note that this functionality may also be offered from the registration function in the OSASIN system itself (see section 2.7).

2.7 Register (intake)

Registering new incidents and supplementing existing incidents is a very important functionality. Registration takes place under pressure, both on the side of the caller (often the Train Dispatcher) and on the side of the MKS. It is therefore important that an intake (the registration) can take place quickly and efficiently. As far as possible, information should be completed automatically (see section 2.8).

A new registration must be quick (1 click or keystroke) to initiate. Specifically, a new registration must also be startable:

- From a location on the map, where the location data is included.
- From the front porch as discussed in the previous paragraph.

During registration, a number of components must be recorded:

- Caller/source information
 - Preferably as much information as possible automatically filled in based on telephone number and time of call or source system.
- Incident type, information and location of the main incident

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- The current system currently has 70+ different incident types.
- Locations must be able to be entered on the basis of different characteristics (GIS ESRI locators), e.g. section and km point, level crossing ID, signal ID, tunnel name. The system retrieves the corresponding GPS location. A location must also be able to be identified on a map.
- Information about affected and stranded train(s)
 - An affected train is a train that is directly involved in the incident.
 - A stranded train is a train that is not directly involved in an incident, but cannot continue its planned journey due to the incident.
- Information about other incidents (e.g. broken overhead line in the event of a collision with a large road vehicle)
 - Other incidents have their own incident type and location.
- Information about infrastructure limitation
 - Which infrastructure has been hit and can no longer be used (partly)?
- Information about logistical consequences
 - How will the incident affect the train service?
- Other information
 - Details (free text).
 - Internal memo: additions that are only visible to MKS employees

It is important that the MKS employee who does the intake is guided through the different parts in a logical and natural way, whereby the caller does not experience any waiting time while entering by the MKS employee. The entered information must be clearly displayed, as much as possible in 1 window (scrolling should not be necessary). The user must be alerted to fields that are mandatory. Whether or not a field is mandatory must be a dynamic property, which is set/adjusted based on previous input/other variables during entry.

Based on entered data, it is determined what other information is needed. Therefore, no parts/fields are shown that are not relevant to the relevant intake.

We keep track of how long an intake takes. If an intake takes above certain limits (there is a warning limit and an exceedance limit), this is indicated visually.

It is possible that colleagues with the same role watch an intake at their own workplace/screen. It is a wish that these colleagues can also supplement / take over / edit this intake at the same time, including actions on the intake such as processing.

Employees with other roles to be configured must already be able to gain insight into some basic data of the incident that is being entered during the intake, whereby it is visible that the intake is still in progress (and the data is therefore not yet final). These employees are not allowed to supplement/take over/edit the intake.

During the intake, it is automatically determined when sufficient information has been entered to be able to process the incident. If so, the corresponding button to start processing is enabled. By default, the button is set to disabled.

Based on input, the initial forecast must be determined and displayed.

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Based on input, the initial TIS (Train Incident Scenario) must be determined and displayed. The initial TIS must be user-adaptable.

It should be possible to enter so-called meta-files (working name). These are circumstances that lead to multiple incidents, but cannot be solved on their own. Think of winter weather, slippery tracks. The MKS then wants to be able to indicate that there is, for example, winter weather in a certain region with general data. If there is an incident in the relevant region regarding the winter weather, this incident must be able to be linked to the meta-file during the intake.

During the intake, if the incident category and location are known, the system determines in the background (based on availability, role, location, type of vehicle, etc.) which employees with which role can be present at the incident location the fastest. An early-notification will also be sent if it is configured for this specific incident category.

- Explanation: by means of an early-notification, the parties involved can get on the road earlier/ get ready to go on the road earlier. The actual alarm takes place later in the process (see section 2.10). The early-notification can therefore quicken help up to a few minutes.

2.8 Automatically enrich information

Based on data entered during the intake, it should be possible for the system to retrieve additional information from other systems and display it. For example:

- Train data (e.g. from-to, carrier, last measured location, loading/hazardous substances due to freight train) based on entered train number
- Reporting data (e.g. Role, location, name) based on telephone number with which MKS is called
- Asset data (e.g. type of bill, status based on exchange number)
- Emplacements overview

Access to other systems is based on ESB technology or point-to-point.

If there is (temporarily) no connection to a delivery system, this may not lead to the blocking of the intake process. In that case, the user must be able to enter data manually.

2.9 Processing (issuance of tasks)

If sufficient information has been entered during a registration (different per incident type), the 'process' button in the intake form is enabled (as also mentioned in section 2.7).

If the user chooses this functionality, the following steps occur:

- It determines which tasks must be performed by which role to handle the incident.
- It determines who should be alerted and informed
 - Alarmed people have a role to play in handling.
 - Informed persons do not (yet) have a task in the handling but must be informed.

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In the current situation, the steps are determined using Workflow tooling (NodeRed). It is important that workflows can be easily adjusted, for example as a result of a changed working method (for example based on BPMN).

The tasks are shown in a task overview, in which a specific role only sees its own actions and the actions to which the role is authorized.

Tasks that can only be performed/determined after another task has been performed are not determined/displayed until that other task has been performed (see also paragraph 2.11).

2.10 Composing alarm and inform messages

For the purpose of alarms and sharing information, messages are drawn up for different types of media. At the moment, the system supports:

- Email
- Telephone, voice message (using text-to-voice functionality)
- SMS message
- Pager message
- TomTom message (location data for route determination in vehicles)

There are templates for the different media and incident types (see section 2.14.3). Based on the templates, the messages are composed.

In the near future, the wish is to connect the OSASIN system to walkie-talkies, as they are used by the MKS and the ICB'ers outside in the field. For example, for the location determination of an ICB employee (this is now determined on the basis of the vehicle) and for reporting on site.

2.11 Tasks

Each role is given an overview of the tasks he/she has to perform in the event of a particular incident (see section 2.9 which explains how tasks are determined). There is a great dependence on these generated tasks among the different users. The tasks are based on agreed and established working methods and procedures that are no longer just on everyone's mind. Generating and displaying the tasks correctly and robustly at all times is therefore an important requirement for the new OSASIN system.

The system should support different types of tasks, which may also have different validity periods:

- Types of tasks
 - Check off task: By checking off this task, the user indicates that the task has been completed.
 - Form task: the task consists of a form with fields that can be entered.
 - Choice task: The task consists of making a choice by the user.
- Validity period tasks

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- One-off: task disappears after handling.
- Persistent: task can be executed multiple times and therefore persists after completion (example: adjust forecast, this must be possible multiple times).

In addition, the system must also support mandatory and optional tasks, where a mandatory task must always be performed, and an optional task must not.

It is important that the user in a certain role has an overview of which incidents the role still has tasks to perform, prioritized if possible. A distinction must be made between mandatory one-time tasks (a task counter is desired here) and optional one-off tasks and persistent tasks (a task counter is not necessary).

The user should also be alerted to new mandatory tasks for his/her role, even if the user does not have the incident in question open.

From the handling, it must be possible to show the incident data and change it. This may then lead to new/different tasks (see reprocessing in section 2.12).

2.12 Reprocessing (making fundamental adjustments to existing tasks)

During the initial processing, it was determined which tasks must be performed to handle the incident. However, new information may become available during the incident (see previous section describing how this can be administered). In this case, the incident has to be reprocessed.

Reprocessing means that the system determines on the basis of the new data which tasks should be performed by whom. There are 2 global options:

- All existing tasks (and information) are deleted and new tasks are made.
- All relevant unchanged tasks remain (including any data entered and handling status) and new/changed tasks are added.

It should be clear to the roles involved that the incident has been reprocessed, and it should be clear what is expected now (what new and/or changed tasks to perform).

2.13 Show Incident Detail Info

From the overview of incidents (see section 2.1) and the map (see section 2.3) it should be possible to show incident detailed information. The incident detail information consists of:

- Generic (an equal User Interface for all roles)
 - Total overview with the most important data.
 - The logbook (see section 2.14.1).
 - Task overview for the current role.
 - Map (zoomed in on the location of the incident in question).
- Specific

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- For each Role it should be possible to display a mix of generic information in a role-specific user interface, possibly with additional role-specific data.
 - The background to this is that the requirements from the different roles with regard to the user interface differ considerably from each other and each role needs a good user interface. Consider, for example, the role AL that the OSASIN system often uses outside and on a tablet, in contrast to an MKS employee who sits inside and has several monitors available on which multiple information systems are shown.

2.14 Key supporting functionality

To support the functionality described above, a new OSASIN system must also contain various supporting functionality. So supporting does not mean optional.

2.14.1 Functional logbook

It is essential that the course of an incident can be tracked in time. For this it is necessary that important data and information about the handling are logged with a timestamp of the moment they became known in the system. It must be configurable which information (change) task handling leads to a log line and which does not.

The aim of the system should be to automatically draw up, as far as possible, a readable and relevant logbook. However, it should also be possible to add log lines manually.

The log contains at least the following information per log line:

- Date/Time.
- Logging.
- Role (as the source of the log rule, even if it was created automatically).
- If the incident consists of several parts (for example, multiple trains involved) for which part (which specific train) the log rule applies.

The logbook must be able to be sorted in its entirety by time, or by time per component.

Note that in addition to the functional log rules, technical logging is also desired (not immediately visible to users) of all user actions.

Log rules must be correctable in the event that they contain incorrect information. Corrections must always be traceable to the person who made them.

2.14.2 Publish and share incident information

Incident information from the OSASIN system must also be able to be shared with other systems/parties. This should be based on triggers that should be able to be defined. A trigger can be the execution of an action, a data that changes value or the achievement of a time/time limit.

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Publishing and sharing should be as much as possible via ESB technology based on a generic data model (Unwanted Event), but in some cases can also be a point-to-point data exchange based on another standard or even a (partial) data dump.

2.14.3 Manage master data and configuration

The OSASIN system must also provide functionality to manage master data and configuration. Examples include:

- Configuring incident types
- Configuring workflow
- Configuring employees, roles and rights (if not already supported by generic ProRail solutions such as SSO and LDAP)
- Templates for alarm and information messages
- Configuring carriers

Only authorized roles are allowed to perform this management functionality.

It must be possible to change master data and configuration without downtime or putting a new version of the system into service.

Note that master data from systems other than OSASIN must also be able to be taken over.

2.14.4 Archiving

Handled incidents must remain immediately retrievable in the system for up to a configurable number of days (now 40).

After this number of days, the handled incidents must be moved to an archive. Here the incidents must be able to be stored for at least 7 years. The archive must have search, show, and export functionality.

2.14.5 Fall-back functionality

If the OSASIN system is (partly) unavailable, this quickly leads to a situation in which the train service is at risk because registration, alarming and resolving incidents are greatly delayed. It is therefore desirable that there is fall-back functionality that, technically independent of the primary OSASIN system, is suitable to support intake and handling of incidents at a minimum level and to provide an overview.

It is desirable that periodically (configurable, e.g. 15 minutes) all incident information from open incidents is exported to the fall-back system. In the event of a failure of the primary system, the ongoing incidents can then be seen in the fall-back system.

It must be possible to create new incidents using only primary data.

There doesn't need to be support for processing and handling tasks. However, it must be possible to add log lines manually.

Support of alarming is desirable, as well as being able to show incidents on a map.

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When the primary OSASIN system is available again, it must be possible to create an export from the fall-back system that can be loaded into the primary system (new incidents and new log lines).

An alternative to a fall-back system is to be able to perform the OSASIN system or other solutions redundantly, which guarantees a so-called 'golden' support level.⁵

2.15 Questionnaire

To determine the suitability of the solution offered by you, we ask you to fully answer the questions in the attached Powerpoint file 'Questionnaire market consultation Rail Incident Management v1.0 ENG'.

⁵ For detailed information about the golden support level contact us. High over it consists of an availability of 99.98%, 24/7 support, response time for issues < 5 minutes, 80% P1's within 45 minutes resolved.

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3 Market consultation procedure

3.1 We are looking for an OSASIN system that also performs perfectly during busy days

With this market consultation, ProRail expects to get a good picture of available tooling that can support (part of) the handling of rail incidents at ProRail. As the previous sentence indicates, ProRail is interested in both solutions that cover the total scope, and solutions that offer support for a specific component.

Depending on the results, this can lead to a tender.

3.2 Procedure

This market consultation has been published on (among others) TenderNed as an open market consultation. This means that all parties in the market have the opportunity to participate.

If the answers given are unclear or raise follow-up questions, ProRail can ask for clarification afterwards.

A summary of the results of the market consultation is made in which the main conclusions are recorded. In any case, no competition-sensitive information will be shared in this report. This document will be shared with all participants afterwards and will - if applicable - be attached to the tender dossier of any future tender procedure for information. The conclusions will be implemented in the tender dossier and/or the tender procedure where ProRail deems it possible and useful.

The market consultation consists of two steps:

1. In writing: answering the questions (see attached-questionnaire);
2. Individual discussions with (part of) the market parties that have responded.

Market parties are requested to register in writing for participation in this market consultation, before the date mentioned in section 3.3, and to send in the required documents as attachments to a TenderNed message.

ProRail will then analyse the reactions and on this basis ProRail can determine to schedule a follow-up meeting with all or part of the parties. There will be a maximum of 6 parties to be invited for a follow-up meeting, all individually.

A report will be made of each individual interview and submitted to the participating party for approval. ProRail will then make one integral (anonymised) report of all conversations in which the most important conclusions from the written responses and the conversations will be recorded. In any case, no competition-sensitive information will be shared in this report. This document will then be sent in draft to all participants in the consultation with the request to read the document and to pass on any comments to ProRail. After all participants have

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had the opportunity to submit comments, the document will be definitively adopted by ProRail. The final document will be attached to the tender dossier of any future procurement procedure for information. The conclusions will be implemented in the tender dossier and/or the tender procedure where ProRail deems it possible and useful.

3.3 Planning

Date	Activity
12 June 2023	Publication / invitation to participate in market consultation by ProRail
30 June 2023	Until this date, the opportunity to ask questions in writing about the market consultation
7 July 2023	Until this date, ProRail has time to answer the questions in writing
25 August 2023	Closure of market consultation, last day before submitting the questionnaire
28 August 2023 – 1 September	Schedule individual meetings
11 September 2023 – 22 September 2023	Individual meetings take place at ProRail headquarters (Utrecht). See attached meeting schedule options.
1 October 2023 – 31 October 2023	reference site visits (if desired and offered)
24 October 2023	Send draft report (individually) to participants market consultation (deadline)
31 October 2023	Comments/approval of participants on draft report (deadline)
21 November 2023	Sending draft report (in full) to participants in market consultation (deadline)
28 November 2023	Comments/approval of participants on draft report (deadline)
15 December 2023	Sending final report (in full) to participants market consultation (deadline)

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3.4 Contact

For questions about and registration for this market consultation, please contact:

Arjen Pfundt

Arjen.pfundt@prorail.nl

3.5 Open and honest

Participation in the market consultation is entirely voluntary and will not lead to any privileges in a tender. Similarly, failure to participate in the market consultation will not lead to exclusion from a possible tender.

By participating in this market consultation, you agree that the information you provide may be used by ProRail in (the preparation of) the tender. Commercial (numerical) information provided by you will be treated confidentially by ProRail.

ProRail attaches great importance to a transparent process. It is not the intention to favour participating market parties in the market consultation or to place non-participating parties at a disadvantage. From this perspective, all relevant information resulting from the market consultation will be made available to all potential tenderers when the tender is published or added to the tender dossier.

Any costs for participation in this market consultation will not be reimbursed.

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4 Attachments

Please note that the Questionnaire is in a separate document “Questionnaire Market consultation Rail Incident Management” .

Annex 1: Scope/Environment Support Handling Rail Incidents

Preparation

- VSM
 - “VerSperringsMaatregelen”
 - Custom application Mendix
 - Application in which predefined standard measures can be administered based on location and unavailability infrastructure.
- BSA
 - “BeSchikbaarheidsApplicatie”
 - Custom application Mendix
 - Application that allows ICB outside employees to sign up for a shift. Based on the BSA and their location, employees are selected to go on site in the event of incidents.
- Ultimo
 - Application from supplier Ultimo
 - Application for resource management (vehicles, tools, equipment, etc.)

Prevention

- ProAction
 - Custom application Mendix
 - Application with which preventive work can be planned, and deviations that are not (yet) disruptive can be registered.
- City Control
 - Application from supplier SIGMAX
 - Application that allows BOAs to issue fines

Repression

- SpoorWeb
 - Curated application with products from multiple vendors, including
 - Qognify
 - Situator CR
 - Situator PT
 - Geodan
 - SWAPP
 - Connector
 - Open Source
 - NodeRed

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- Application with which rail incidents are monitored, registered and handled. The current system that may be replaced by OSASIN.
- OnSolve (formerly MIR3)
 - Application from supplier OnSolve
 - Application with which messages (alarms and informings) are sent to recipients in the media desired by the recipient (e.g. telephone, e-mail, SMS)
- SIMCA
 - “Spoorse Incidenten Monitoring en Communicatie App”
 - Custom application
 - Application with which incidents can be tracked on a mobile device, including personalized notifications based on set filters. Uses SpoorWeb information, read only (no registering of data through this application).
- PIP
 - “Ploegleider InzetPlan”
 - Custom application Mendix
 - Application with which a plan of action with regard to a re-derailment can be administered, including the administrative and legal transfer of the equipment back to the carrier.

Evaluation

- EDB
 - “Evaluatie DataBase”
 - Custom application Mendix
 - Application with which the handling of rail incidents can be evaluated.

Data Analysis

- VerstoringsRadar
 - Custom application
 - Application that provides insight into the distribution (in location and time) and number of incidents of a limited number of incident types. Used as input for preventive work
- Sherlock
 - Custom application
 - Application with which data related to rail incidents can be analyzed.