Comprehensive asset management for rail vehicle fleets
Challenges in asset management for vehicle fleets – a specialised solution from ZEDAS

Market situation in fleet management

Cost savings and increased efficiency are more important than ever before in the management of vehicle fleets. Vehicle availability, reliability and safety must be guaranteed at all times.

Challenges in everyday business:

- How do you detect vehicle issues at an early stage?
- How can you minimise out-of-service time and idle time caused by technical failures?
- How do you provide operating data or diagnostic data recorded on mobile devices for maintenance planning?
- How do you set the right maintenance strategies?
- How do you plan and optimise your workshop procedures?
- How do you develop long-term investment planning?
- How do you calculate LCC and RAMS indicators?
- How do you record compliance with safety regulations (ECM)?
- How do you ensure a complete flow of information from the manufacturer to the maintenance team?

zedas®asset: the asset management solution

Monitor the condition of your fleet and efficiently control the use of service and maintenance resources. zedas®asset records condition data in vehicle operation, evaluates this data and enables you to predict vehicle behaviour. The results go straight into maintenance planning. This solution supports your continuous improvement process and your investment decisions.
1 Data collection
Access condition data straight from the vehicle OBU. Record measuring data (wheel set data) during maintenance and load/stress data (oil pressure, mileage and temperature) during operation.
Keep up-to-date with vehicle status and condition during operation.

2 Analysis
Analyse condition information to detect any critical issues.
Automatically generate detailed fault messages using the standardised error list and detect production defects and weak points on this basis.

3 Planning
Plan corrective and preventive maintenance.
Improve workshop efficiency by working out what jobs are coming up, forward-planning and creating the best possible resource availability.

4 Processing
Use checklists and work packs to process your maintenance jobs.
Avoid idle time in the workshop and vehicle out-of-service time. The best possible use of resources is ensured in line with qualifications, skills and availability.

5 Documentation
Document vehicle condition information, component changes and the use of resources.
Ensure ECM-compliant workshop documentation. Check your planning and efficiency using variance analyses. Monitor the warranties for vehicles and components.

6 Forecasting
Forecast the future vehicle condition on the basis of current and historical data, and plan maintenance on that basis.
Increase the reliability and availability of your vehicle fleet.

zedas®asset - solutions for individual requirements for every stakeholder group, above and beyond standard service

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Mapping all processes: simple – consistent – up-to-date

The benefits of zedas® asset:

- overview of the current condition of the vehicle fleet
- automation of workshop procedures
- comprehensive documentation of maintenance history
- component-specific monitoring of warranty terms and warranty entitlements
- location-specific analysis of weak points and production defects
- ECM-compliant workshop documentation
- excellent integration into existing system environments thanks to standardised interfaces (ERP, wheel set measuring equipment, underfloor lathe, RSRD²)

The key functions:

- operating log
- condition monitoring
- mobile maintenance
- resource planning
- reporting
- job management
- time logging
- fault management
- maintenance planning
- wheel set data management
- lease management
ZEDAS GmbH develops software products for the maintenance management of vehicle fleets and technical systems and for the logistical management of rail traffic. With more than 25 years of experience and a specialised, powerful network, we support professional customers worldwide.

Our standard solutions offer administrative and operative support for process management in specific sectors. Our customers have access to experienced consultants who provide excellent expertise for the complete implementation of their projects.

A 24/7 support and update service ensures reliable operation and guarantees you a state-of-the-art product for the long term with high investment security.

Our expertise in the rail market and our many years of experience guarantee that your project will be implemented successfully.

Current information at www.zedas.com
zedas®asset Smart at a glance: (from left to right) select vehicle, choose location of faults, enter faults

**Highlights**
- Structured and simple recording of faults (using components)
- Automated work steps through integrated workflow
- Display of recorded faults avoids duplicate entries
- Direct data flow into the central maintenance system
- Easy identification of all objects (GPS, CR code)
- Flexible adaption to company-internal workflows

**Functions & Features**
- Recording of various basic data including meter readings
- Integration of photos (camera or gallery)
- GPS coordinates, QR code scanner
- Display of all information through user-specific filter functions
- Automated synchronization of mobile recorded faults with the main system
- Simple usability with intuitive gesture control
- Plausibility check of data
- Online/offline working
- Compatible with Android, iOS and Windows
zedar®asset Smart
mobile application for handling job orders

zedar®asset Smart at a glance: (from left to right) select and download job order, view work processes, handle checklists

**Highlights**

- Availability of all information required for maintenance (object history, maintenance instructions)
- Intuitive mobile order processing and feedback
- Real-time overview of the processing status of faults and orders
- Complete documentation of all measures carried out
- Audit-proof evidence of vehicle transfers
- Direct data flow into the central maintenance system

**Functions & Features**

- Asset and employee-related assignment of job orders
- Completions of the maintenance on site or at the workshop by own service teams or external service providers
- Handling of checklists and inspection points incl. meter registration
- Viewing and integration of documents (e.g. work, operating and maintenance instructions)
- Direct repair and completion of unscheduled faults
- Documentation of partially completed job orders
- QR code scanner, GPS functionality
- Online/offline working
- Compatible with Android, iOS and Windows
**Highlights**

- supports your workshop and service team in the optimal planning of pending jobs
- creates cross-department and cross-organisation transparency for linked processes
- visualises savings potential and improves resource utilisation
- guarantees the deployment of the workshop and service team as required and for the best quality
- allows for monitoring of skills and qualifications
- ensures readiness for use, shows weaknesses and reserves
- optimises the use of resources on the basis of stored variable working time models

**Targeted use of resources – the key to greater efficiency**

Having a complete overview of a workshop/service team’s jobs is a prerequisite for optimal processes in an efficient organisation. Up-to-date information, transparency and security in planning are an important guarantors for high-quality and standardised services and ultimately generate high customer satisfaction.

**Create an overview and make use of free resources!**

Resource Manager provides more insight into maintenance and service organisation’s jobs. All processes can be planned quickly and easily, free resources are shown and bottlenecks are detected early – long before they can have an effect.
**Definition of skills for proper maintenance**

Through the assignment of work schedules and skills to resources, both availability and suitability can be checked during planning. As a result, it is possible to achieve not only optimal utilisation but also documentation of the qualifications required for these work steps. The skills on file for operating resources and personnel, such as additional qualifications and licenses are constantly checked for their validity period.

**Detecting planning conflicts**

The planned deadline and the implementation period are shown for workshop jobs. Missed deadlines are visually highlighted. Job planning for outstanding deadlines and outstanding faults is possible directly from the Gantt view, whereby planning conflicts can be seen at a glance. Resources which are not available or only have limited availability are identified immediately.

For a better overview, all availability, skills and deadline conflicts are shown in a special view. The planner is therefore effectively supported in processing the jobs quicker and with no errors.

**Easy and intuitive operation through graphical user interface**

Resource Manager fundamentally supports the planning process through preselection of the available resources. Thanks to the user-friendly navigation, it is possible to make assignments to maintenance jobs quickly and easily. Helpful additional data in the info window supplements the information for the user.

The individual processes are shown on a timeline. Jobs can be positioned and coordinated quickly and effectively in the Gantt chart using drag & drop. Dependencies between the maintenance jobs, such as simultaneous use of operating materials, are also shown just as transparently as complex job packages.

The Resource Manager, as part of the asset management system zedas®asset, is a tool with which you can plan scarce resources efficiently, avoid waiting time in the workshop and optimise vehicle availability.

**For other questions, please contact us!**
The planning of requirements and investments for systems maintenance and replacement over the next 20 to 30 years plays an increasingly important role in railway undertakings and railway infrastructure companies. ZEDAS GmbH, the specialist in maintenance and systems management for railway companies, will support its customers in the planning of the necessary investments with the new Invest Manager module in the zedas®asset product suite.

Railway undertakings (RU’s) requirements for flexibility, security and performance are increasing. This affects the effective use of the RU’s available resources. In a well-managed transport operation and service business, there is plenty of expertise available. What could be more appropriate than using this knowledge for optimal planning of future investments? But until now, companies have been lacking a simple solution which combines this knowledge with maintenance data and allows the user to generate planning variants based on a variety of scenarios. The new zedas®asset Invest Manager module allows for a forecast based on real data. This leads to detailed, punctual and well-founded budget planning, as a result of which the company’s competitiveness increases.

**Generation of planning scenarios**

The system-specific maintenance history, with master, cost and condition data, and the preventive measures preview in the asset management system zedas®asset provide an excellent basis for the determination of requirements for the future. The user can vary the aggregated annual data for each system in accordance with their expectations.

The use of freely selectable factors to easily modify the planned costs helps to model and forecast the future influences on the investments as objectively as possible. Comparative consideration and simplified decision-making can be realised through the generation of multiple planning scenarios. Comprehensive reporting helps the user to evaluate the results. Selected data from a finalised planning scenario, for example data concerning future renewals and replacements, can be applied in the existing zedas®asset planning of measures.

**Figure: Creation of planning scenarios in zedas®asset Invest Manager**

The planning of measures for system maintenance and procurement can now easily be done effectively, with time savings and with a well-founded database. It is possible to react quickly and precisely to changes, e.g. new regulations for transport service or availability. Planning staff and controllers, as well as the companies service units such as workshops, particularly benefit from the new functions.