BOOM

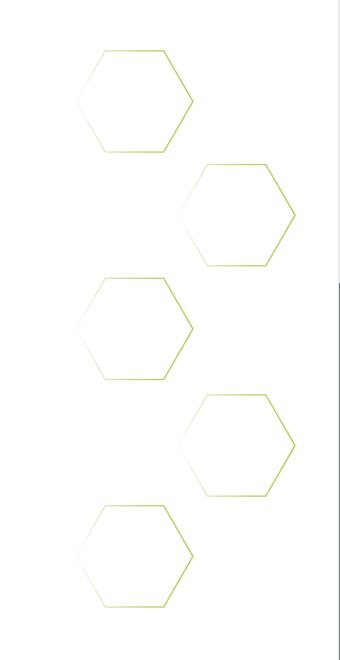
RAIL SOLUTIONS

The holistic solution designed specifically for rail transport

TRANS RAIL BUSINESS FORMING

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WE TALK THROUGH AND THROUGH RAIL...

BOOM has been developing software solutions tailored to the international railroad industry for more than 25 years. The specific know-how from many years of cooperation with well-known companies from the railroad industry makes BOOM the right partner for the realization of individual projects for the railroad system.

Anyone can do maintenance management but not for the railroad!

Norms, standards, processes, etc. in the context of the rail industry: We deal with nothing else. We are constantly expanding our rail know-how and are available to our customers as a competent and trustworthy partner. We ensure that this know-how is continuously incorporated into our solutions, so that not only new customers benefit, but also our existing customers. We give you the assurance that our solutions always meet the requirements of the rail industry.

...and this can also be seen in our software solutions

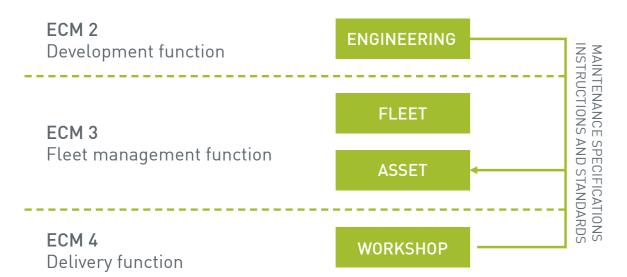
We attach great importance to developing solutions that mean investment security for our customers. That is why we are constantly developing our solutions, from which our customers also benefit. Customers do not have to deal with norms and standards - because our Rail Solutions, which are constantly kept up to date, take care of that.



EFFICIENT ECM COMPLIANCE

The ECM regulation defines very clearly how rail vehicles and components must be maintained in order to promote safety and interoperability in rail transport. Ensuring compliance with the ECM regulation requires considerable effort from companies, firstly in terms of documentation requirements and the associated traceability, and secondly in terms of internal and external communication. We want to minimize these challenges. Our specialized software solution relieves the burden of administrative tasks, reduces the error rate, enables traceability and thus supports ECM 2, ECM 3 and ECM 4 managers in complying with ECM regulations.

STRICT SEPARATION OF THE ECM ROLES BY DESIGN



A CONSISTENT SOLUTION













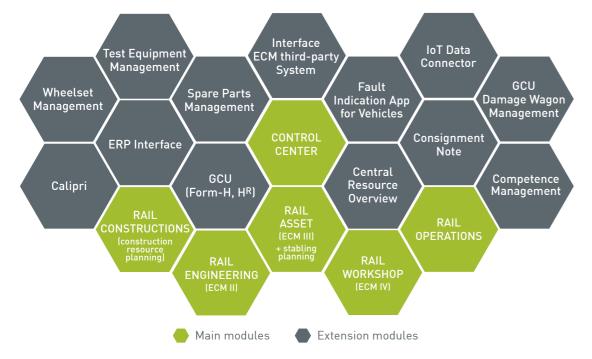
THE BRS STANDARD PORTFOLIO: MODULAR, SIMPLE AND FLEXIBLE

BOOM Rail Solutions (BRS) have been developed specifically for the rail industry and cover the industry's most important standards and norms. The technical and content-related further development of our solutions is part of our daily business, so you can be sure that your solution is always up to date. Our goal is to support safety in the railroad system with our solutions and to do so in a resource-saving way. That's why we always keep documentation security in mind when developing our solutions.

BOOM Rail Solutions make your work easier. You can think of our rail solution as a central know-how carrier. Information is stored and made available in the quantity and quality where and when it is actually needed. With a simple rights concept, you determine who should receive which information.

Buy only the modules you need at the moment or in the near future.

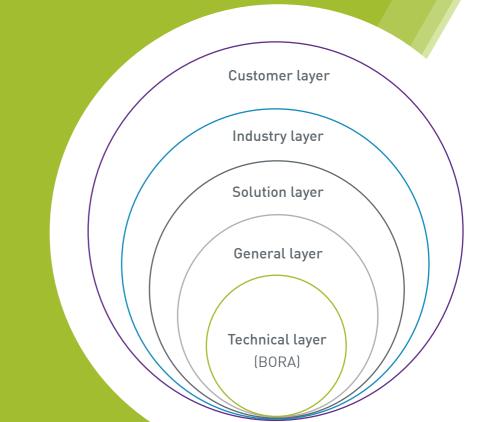
The system can be expanded as you wish, when you wish and how you wish. With each add-on module, additional functions are unlocked, enabling complete mapping of the entire maintenance process.



TOTAL CUSTOMIZING -THE EASY WAY TO YOUR **INDIVIDUAL SOLUTION**

We are the competent partner for your individual projects: We digitalize everything that can be digitalized in the railroad environment.

ness will develop in the future: Your software will adapt to them.



RAIL ASSET

We put your vehicles in the center of attention.

RAIL-SPECIFIC ASSET MANAGEMENT FOR **ROLLING STOCK**, **COMPONENTS AND** IMMATERIAL.

Optimal maintenance planning

With Rail Asset, you know which vehicles are available and what condition they are in. This allows you to optimally plan workshop visits, taking into account deployment planning and maintenance specifications.

Complete traceability

We ensure the traceability of all crucial events with Rail Asset. The vehicle file contains all events relating to the rail vehicle that are relevant for maintenance on the one hand and required by the ECM regulation on the other.

End-to-end rail solution

The decisive advantage of our BOOM Rail Solutions is the interaction of the modules. Order management is simplified, maintenance specifications can be retrieved or forwarded at the push of a button, documentation records are quickly available and seamless.

THE MOVE TO PREDICTIVE MAINTENANCE AND A DIGITAL TWIN

We understand the processes, the events, the states, the technical features - we understand everything that can be digitalized.

What we make of it?

We deliver the prerequisite to create a digital twin of your vehicle. Get to know your vehicles even better and act with foresight.





STANDARD-BASED WHEELSET MANAGEMENT



From the basic functions to future-oriented wheelset management

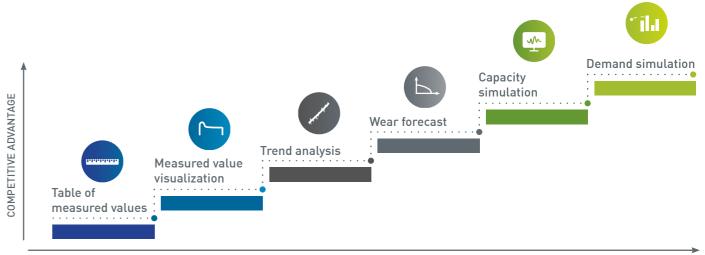
The Wheelset Management module is an addon module specially developed for Rail Asset. While Rail Asset focuses on the entire rail vehicle, the Wheelset Management module concentrates exclusively on the wheelsets of the rail vehicle in strict compliance with the EN15313 standard. Wheelset Management is

used for the professional monitoring of wheelsets as well as their management and documentation of maintenance over the product life cycle. It also provides the functions for future-oriented wheelset management that forecasts the wear development of wheelsets.

FROM MEASUREMENT TO DEMAND

Do you know your need for wheelsets for the coming year?

If your answer to this question is "no", but you would like to know it, let us help you. Based on professional monitoring of each wheelset and performing trend analysis, we are able to fore-



DATA QUALITY REQUIREMENTS



cast future wheelset demand at fleet level. We rely on bivariate models that include the most important influencing factors in the forecast.

TOGETHER WITH YOU WE GO THE WAY FROM MEASUREMENT TO DEMAND PLANNING.

RAIL WORKSHOP

For better plannability and controllability in the process

The paperless workshop

BOOM Rail Solutions enable a mostly paperless process - from order entry to completion, everything can be done digitally in the Rail Workshop module. Among other things, we make this possible by:

- // Seamless connection: Rail Workshop and Rail Asset
- // Integrated resource planning
- // Checklist-driven order processing
- // Interfaces to operating and measuring equipment
- // Interfaces to existing systems (e.g.: ERP)

No more reactive - take a proactive approach instead.

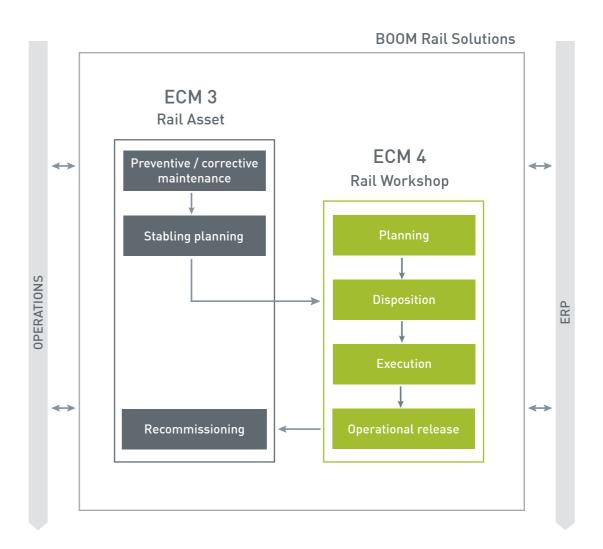
Our goal is to positively influence your productivity. By means of key figures and digital order management, you have a good overview of your resources and can thus plan optimally for the future.

Focus on your core business

The guestion is: How much time do you and your employees spend on administrative tasks? This number can never be too small, is our assertion. The key word here is automation. Our BOOM Rail Solutions stand for simple information and documentation exchange, because they make the information available where and when it is needed.

THE SLIM AND **CLEAN MAPPING OF THE** WORKSHOP PROCESS

INTEGRATED MAINTENANCE PROCESS



RAIL ENGINEERING

The Rail Engineering module is used to manage

- // vehicle categories/series,
- // component structures,
- // maintenance types,
- // maintenance strategies,
- // work processes,
- // parts lists,
- // checklists,
- // qualification types and
- // tool types

and also ensures compliance with the ECM regulation.

By linking the Rail Asset and/or Rail Workshop modules with Rail Engineering, the technical vehicle data as well as the maintenance specifications can be easily distributed and always kept up to date. Likewise, the vehicle manufacturer benefits from the continuous information gain when linking the systems.



UPCOMING

Trials, conversions, roll cures and modifications

Provide support for the planning, initiation, execution, and evaluation of technical tests and modifications to vehicle series.

RAIL OPERATIONS

Optimize processes by providing targeted information and by involving employees in the processes related to train operations on a role-dependent basis.







Involvement of the executing employees in the transport process



Continuous improvement of data quality through domain-specific plausibility checks

PROCESS-DRIVEN WORKFLOWS & STRUCTURED INFORMATION FOR YOUR TRAIN OPERATIONS





Direct link to Rail Asset and Rail Workshop



Significant improvement in planning

ADVANTAGES OF DIGITAL TRAIN PREPARATION



Systematic receipt of transport requests (what, where, when, where to)



Control of work processes with full involvement of the executing employees



Solid data basis through central vehicle master data









Creation of transport documents (wagon list, brake slip, consignment note)

Optimization of the operating sequence

through status-dependent process steps

Well-arranged display of the

train composition



Easy to create GCÚ damage reports







Reference Sheet | Austrian National Railways ÖBB Technische Services



Challenge: standardization and increased efficiency

More than 30 stand-alone solutions were being used for maintenance management making it impossible to have process continuity and complete and consistent documentation.

The **BOOM MAINTENANCE MANAGER** is a software solution with a completely new caliber and it starts by addressing the immediate needs on site. Workshop expertise and practical experience guarantee optimum ease of use, practicality and one hundred percent suitability for everyday use of the maintenance software.

Project facts

Contact person

ŐВВ Technische Services

Basis for decision: High reliability and better productivity

When Ing. Artner from ÖBB TS was asked about the main benefits of the software solution he lined out: "What we have running here is a number of attractive features. This program is tailor-made to exactly meet all the requirements to achieve reliable maintenance." Workshops throughout the entire ÖBB TS network now have all standardized maintenance processes with every detail clearly on view. Ac-

Decision confirmed by economic success

Franz Seiser Business Division Manager at ÖBB Technische Services, is impressed with the BOOM MAINTENANCE MA-NAGER's consistent focusing to meet the high demands of modern maintenance. "This is a system which is customized to our needs and is an important element in the standardization and optimization of our maintenance processes."

curate information is the backbone for newly established processes of uniform guality and precise order planning. The BOOM MAINTE-NANCE MANAGER modules support the entire maintenance system, starting with planning and process design up to immediate invoicing. Powerful interfaces ensure smooth interaction with applications from Controlling, Financial Planning and Materials Management (SAP R/3).

BOOM MAINTENANCE MANAGER at ÖBB Technische Services



Challenge: Efficiency in meeting ECM-requirements

ETL Lokservice GmbH pays particular attenticompliance with ECM requirements and thus to on transparency and controllability of processes. the to

Using Rail Workshop, Boom's digital workshop management system, everything from the incoming inspection to the release for operation is ECM-compliant. This not only simplifies order planning, but also the actual work on the vehicle. Digital checklists are used to process scheduled activities on the vehicle according to maintenance specifications, and the technicians receive all the information they need them out directly at their fingertips. ETL Lokservice GmbH can thus concentrate fully on its core competencies, as administrative activities become obsolete with Rail Workshop.



Basic of decision making: Speed in project realization

ETL Lokservice GmbH's goal was to implement a software solution for its workshop in Gramatneusiedl before the certification audit. This resulted in a very tight schedule that could not be met with custom software. This was the decisive reason for the search for a digital workshop management system, which is ready to use in its basic functionality, promises ECM conformity and also requires little time for customizing. This is where Boom Rail Solutions was convincing. The standard software solution completely maps

100% ECM compliant workshop solution

"Together with Boom Software, we have prepared the workshop software in such a way that it really is 100% ECMcompliant according to our requirements while also improving usability in everyday work on the shopfloor, and all this in an impressively short time.", says Armin Wohlfahrter, Managing Director at ETL Lokservice GmbH.

the core processes and does so with a focus on the ECM standard, which significantly shortened the project duration and made the project schedule realistic. The possibility to link the two modules of Boom - Rail Asset and Rail Workshop - in order to exchange order data and documents quickly and easily was also convincing. In addition, the project team impressed with its industry-specific know-how and fast response time during the whole project phase and beyond.

BOOM RAIL SOLUTIONS at ETL Lokservice GmbH

SIEMENS

Reference Sheet I Siemens Mobility Austria GmbH I Maintenance



LEAN SMART MAINTENANCE WITH BMM

The Siemens Mobility Austria GmbH in Graz is considered a flagship plant for the LEAN SMART MAINTENAN-CE philosophy developed by the University of Leoben. A joint cooperation agreement forms the basis for the continuous further development of maintenance and information management. With the BOOM MAINTENANCE MANAGER, the maintenance department has a tool in use, with which the level of excellence can be achieved above all in the following key areas:

- 📈 Organization
- 📈 Strategy
- Key figures and controlling
- 💓 Spare parts management
- 📈 Knowledge management

Project facts

Customer Siemens Mobility Austria GmbH Eggenberger Straße 31 AT-8020 Graz www.mobility.siemens.com

Contact person Philipp HOCHSTRASSER Head of Site Administrati Department

Winner of Maintenance Award Austria 2021 The implemented IPSA system convinced:

- # Easier planning and documentation
- ✓ Saving of resources
- Complete integration of the system

 Systematic standardization of preventive measures

SIEMENS

Basis for decision making: Risk-based maintenance

Siemens Mobility GmbH produces technically complex, highly safety-critical products at the World Competence Center for chassis in Graz. Due to the high demands on reliability, availability, maintainability and safety of all components in the system, the identification, evaluation and elimination of risks are among the most important tasks. The CRITICALITY ASSET PRIORITY module is used to determine the cri-

CONCLUSION

Economic success confirms the decision

A solid order management and the continuous development of strategic elements makes **BOOM MAINTENANCE MANA-GER** a success factor for Siemens Mobility Austria GmbH. For Philipp Hochstrasser (Head of Site Administration Department at Siemens Mobility Austria GmbH) the implemented solution is the foundation for LEAN SMART MAINTENANCE.

ticality of the systems from the perspective of production, work preparation and maintenance. The criticality index helps to reduce gut feeling decisions and to support the decisions made with solid facts. In addition, it promotes transparency by providing comprehensible and well-documented information on the basis of the evaluation for the departments.

BOOM MAINTENANCE MANAGER at Siemens Mobility Austria GmbH

Benefits

- // Quickly ready for use due to TOTAL CUSTOMIZING
- Safety through proven know-how and complete adaptability at any time
- 🥢 Cost savings
- Modern and user-friendly interface
- // Optimization of maintenance processes
- // Consistent and complete documentation
- / Investment security through lower follow-up costs and licensing policy

- // Complete order management
- // Strategic LSM modules
- // User interface adapted to employees
- // Professional project team
- Rapid adaptability to requirements thanks to the TOTAL CUSTOMIZING approach



Challenge: Optimization of efficiency

Société Nationale des Chemins de Fer Luxembourgeois, in short CFL, is the national railway company of Luxembourg. It is responsible for the operation, maintenance and development of the infrastructure of the Luxembourg national rail network. The company is divided into three divisions: passenger transport, freight transport and infrastructure management. Each year, it carries more than 25 million passengers and around 2,440 million tonne-kilometres of goods.

The **BMM** was integrated as a mobile workshop solution into the existing IT system landscape of CFL in order to optimize planning processes on the one hand and to reduce unnecessary downtimes and unnecessary shunting movements on the other.

Project facts

Contact person



Basic of decision making: Safety and guality as standard

The BMM makes a significant contribution to workshop planning. It is used to allocate the reguired resources to the individual orders. This ensures that the activities to be carried out on the vehicle are only carried out by gualified personnel and that these employees have the appropriate tools and work space at their disposal. By using the **BMM**, it is always traceable who

Effectiveness and efficiency

"The BOOM Maintenance Manager makes workshop activities at CFL much easier: From resource planning to maintenance work, our operational processes are thus accelerated and optimized," says Frédérique Gueth, Digital Transformation Manager | CM/DTM at CFL.

carried out which maintenance work on the vehicle and which tools were used for doing so. In addition, the documentation of the activities is carried out by the workshop personnel directly on the vehicle, thus ensuring complete documentation. The BMM thus supports the establishment of safety and quality as standard at CFL.

BOOM MAINTENANCE MANAGER at CFL



Reference Sheet | Innofreight Solutions GmbH



Challenge: Optimizing data consistency and data guality

Innofreight Solutions GmbH provides services to various industries through the development, leasing, and operation of customized, modular logistics solutions. Around 15,000 containers and 2,000 InnoWagons of the company are used in 17 European countries. The complexity of the business model poses a significant challenge for data management.

Given the continuous growth and the increasing amount of sensitive and security-relevant data, the need for professional, software-supported data management has become obvious. The need for end-to-end data management is confirmed by the obligations of ECM-compliant business.

Project facts

Customer Innofreight Solutions GmbH	
Grazer Straße 18 AT-8600 Bruck an der Mur www.innofreight.com	
Contact person Wolfgang SEIDL Quality Manager	Project s 2019
Solution focus Software-supported data pr master and movement data	



Basis for decision: A strong partner in immediate vicinity

A growing number of wagons are being added to the ECM management of Innofreight Solutions GmbH. In combination with the increasing number of customer-specific logistics solutions, this leads to more complexity in the entire process. The use of a software solution that minimizes this complexity and supports ECM compliance with its functions is therefore essential. When selecting suppliers, the organization

Flawless and consistent documentation

"The possibility of integrating various interfaces, such as to BMD systems, ensures smooth interaction between the applications, making BOOM Rail Asset Management an even more comprehensive tool that significantly supports us in meeting ECM-compliant documentation requirements, says Wolfgang Seidl, Quality Manager at Innofreight Solutions GmbH.

uses a catalog of criteria as a guide. In addition to the performance/price ratio and the actual benefits of the solution, another decisive criterion is the supplier's geographic vicinity. "Having the expertise of a strong partner right on our doorstep is an extreme advantage, especially when it comes to implementing customerspecific requirements," explains Florian Pöllabauer, Head of Digitalization and Controlling.

> **BOOM RAIL SOLUTIONS** at Innofreight Solutions GmbH



Reference Sheet | Salzburg AG für Energie, Verkehr und Telekommunikation



Challenge: Moving away from stand-alone solutions towards a complete solution

The Salzburg AG's goal is to increase user-friendliness and process orientation by means of an end-to-end software solution. Until now, needs were covered by individual partial solutions, which contributed to a very heterogeneous system landscape and made central control difficult.

Salzburg AG therefore set out to implement a standard software solution for the maintenance and repair of vehicles and infrastructure, which includes links to existing systems such as SAP as well as to other systems such as personnel management. In addition, special solutions are available for reporting by vehicle drivers or specific services that report various conditions via sensors.

Project facts

Contact person



Basis for decision-making: Established standard product for rail and public transport

The Salzburg AG recognized in BOOM Software AG a strategic partner that not only had the necessary industry know-how, but also an established product that covers the needs of the public transport industry. This and the possibility to add individual customizations, as well as the ongoing product enhancements, strengthened the image to receive a solution for the current requirements as well as to be able to quickly provide answers for future requirements.

Process control and management at high level

"With BOOM Software, we have found the ideal partner who brings us a big step forward in terms of digitalization. Thanks to BOOM's complete solution, we are able to better control our processes and react more quickly when necessary.", emphasizes Christoph Innerhofer, Technical Asset Management of the business unit Transport at Salzburg AG.

Combined with the corresponding consulting competence for decisions on implementation, the possibility to use a support service for the ongoing operation and the many years of experience in the rail and public transport sector, this led to the decision to enter into a partnership that is to move far beyond the initial project along a roadmap.

BOOM RAIL SOLUTIONS at Salzburg AG



Reference Sheet I Rhomberg Sersa Rail Group



Challenge: Centralized reporting at group level

The Rhomberg Sersa Rail Group consists of a large number of companies around the globe. As a prerequisite for strategic decisions, more transparency is required within the group. This resulted in a key requirement for a future rail solution.

The specification of Rhomberg Sersa Rail Group was to implement decentralized solutions in each company of the group and to consolidate them in a higher-level management cockpit. However, the solutions were to be implemented step by step. Therefore, a software solution was sought that was easily scalable and could thus be extended across the group. With BOOM Rail Solutions, the company found the desired solution.

Project facts

Customer Rhomberg Sersa Rail Group Mariahilferstrasse 29 AT-6900 Bregenz www.rhomberg-sersa.com Pri 20

Contact person

Dipl. El. Ing. ETH Matthias MANHAR Division Manager Rhomberg Sersa Technology

Solution focus

A scalable, cross-group maintenance solution for machines in the track construction business.



Basis of decision making: Modular maintenance solution with high scalability factor

The BOOM standard products Rail Asset and Rail Workshop have been introduced in the first step in three companies of the Group. The companies work with an independent system, but reporting flows together at group level in order to achieve the necessary transparency. The focus is on the efficient fulfillment of ECM 2, 3 and 4 requirements, the targeted optimization of planning reliability and ensuring the traceability of rail and special vehicles. Interfaces to existing ERP systems and to the inter-

CONCLUSION

Fast and reliable implementation

"BOOM's standard solution completely maps the essential maintenance processes and can nevertheless be adapted to the individual needs of the companies. The approach: "As much standard as possible and as little customizing as necessary" is put into practice in this way.", summarizes Garry Thür, Chief Technology Officer at Rhomberg Sersa Rail Group.

nal HR tool complete the overall system. This gives the company a firm grip on maintenance costs, reduces follow-up investment costs and extends the service life of rolling stock. Another topic that will be addressed in the future with BOOM Software's solution is rail operations. Through the targeted provision of information and through the role-dependent integration of employees in the processes related to train operation, processes are improved.

BOOM RAIL SOLUTIONS at Rhomberg Sersa Rail Group

Benefits

- // Extension of maintenance cycles
- / Transparency in the process
- // Complete adaptability at any time
- Planning reliability
- ∥ Traceability
- Øptimization of maintenance costs
- // Improved reporting for strategic decisions

- // Industry know-how from BOOM Software
- // ECM-compliant standard solution
- // Rapid prototyping
- Professional project team
- // TOTAL CUSTOMIZING approach

national express

Reference Sheet | National Express Rail GmbH

ational express

VEHICLE LIFECYCLE MANAGEMENT

Challenge: Central master data management

Master data management in the asset management is a central function in the **BMM** solution for National Express. All meters installed in vehicles and the complete component structure including component master data are depicted in addition to general data such as UIC and factory numbers, commissioning date and manufacturer/supplier. Conductors transmit current meter readings on a daily basis, which are imported in **BMM**.

Technicians can determine at any time which component was installed at which location and which work order was issued for the task. The lifecycle file is always complete and current. Notifications and faults that have occurred as well as performed and planned orders are also documented.

Project facts

Customer National Express Rail GmbH Maximinenstraße 6 D-50668 Köln www.nationalexpress.de Projec 2015 Contact person Fabian BERNER

© National Express

Solution focus

 Gapless operational notification acquisition and fault documentation
 Transparency of maintenance activitie

- Fulfiliment of documentation obligation
- // Scalability for fleet expans

national express

Basis of decision making: Consistent documentation

All maintenance activities are performed by external workshops. Intervals or status-based notifications, stipulated by the manufacturer are the basis for generated orders in **BMM**, which are allocated in the planning board of executing workshops and transmitted via automatically generated order forms.

CONCLUSION

Best overview for optimal planning

"BMM is our central tool for management and documentation of all vehicle data. BMM consistently provides an overview of our vehicle statuses, allowing us to optimally plan pending maintenance activities," says Fabian Berner summarizing the successful implementation of BMM at National Express.

Changeover from BMM to BOOM Rail Solutions

National Express has decided to make the switch from **BMM** to the standard solution BOOM Rail Solutions. In the process, Boom Software also takes care of the migration of all existing data. The new system will provide National Express with an end-to-end system, based on the ECM regulations, that will also significantly simplify collaboration with external service providers.

Workshops execute the orders and document performed activities (maintenance, repair, exchange of components, etc.) in their systems.

> BOOM MAINTENANCE MANAGER at National Express Rail GmbH

Benefits

- // Consistent and gapless documentation
- // Complete lifecycle file at the click of a button
- Scheduling of maintenance slots for coordination with executing workshops

Success factors

- // Longstanding expertise of Boom in the rail sector
- // Professional project team
- Quick project implementation on account of joint, clear requirement ascertainment
- // Quick adaptability to requirements due to the TOTAL CUSTOMIZING approach

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34

YOUR ADVANTAGES WITH BOOM RAIL SOLUTIONS

- -depth process understanding in the field of aintenance
- pid prototyping after common workshop
- andard solutions, specially developed for the ilroad industry
- ossibility of total customizing of our products
- liable maintainability of the solution chnically and in terms of content
- Focus on compliance with international norms and standards
 - rong international network
 - ng-term partnerships with customers and rtners
 - nsistent consulting and implementation proach

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BOOM

RAIL SOLUTIONS

TRANS RAIL BUSINESS FORMING

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