SoftRail

APPLICATIONS TARGETED FOR THE RAILWAY INDUSTRY

BinarYsYstem

You know what you need; we know how to give you

BINARY SYSTEM GIVES MOBILITY TO RAILWAY UNDERTAKINGS

BinarYsYstem

Years of research and work side by side with partners and customers have made Binary System a leader in Italy and Europe in the creation of software applications designed to manage railway business activities.
The numbers speak for themselves: today more than 35 companies have chosen the Binary System software services, as proof of the quality we pursue in our daily work and as the trust of the customers we serve.

Our products are industry excellence for functionality, integration and mobility. Unique in the world able to ensure integrated management via web and mobile on all the modules of the SoftRail suite, our softwares are completely customizable according to the needs of the customers and integrated to the latest generation devices such as smartphones and tablets.

Binary System has an innovative intelligence with a green soul. Thanks to our telematic management tools we have dematerialized paper documents, improving usability and accuracy of communications.
All our applications, developed with web and mobile technologies, allow real-time management control of all operational activities.

Certifications
In a world where administrative and managerial transparency requirements tend to be translated with excessive formalization of procedures and increasing bureaucracy, Binary System has decided to put the individual at the center of attention, starting with the path that has led it to obtain the ISO 9001:2015 Quality Certification and to adopt the international standard 27002: 2014 Guideline for information security.

VISION

Binary System aims to investigate its customers' needs and represent a reliable partner able to guide them through the best IT evolution.

In Italian language, "Binary" is a term used both in computer and rail sectors. We chose that with the purpose to express the connection between us and our partners, as our claim declares: "You know what you need; we know to give you".

Supplying increased efficiency and safety is our main goal.

MISSION

Binary System flourished within' one of harshest ever seen economic crises. We wanted not only to contribute to the recovery, but also with our skills to positively affect the economic and social scenario.

Aware of this responsibility towards next generations, driven by passion and by the will to satisfy our customers, we want to conceive and develop high quality software solutions at affordable rates. We want to support our customers step by step and to guide them through the best technological and sustainable evolution.

TECNOLOGIE BSDK

Binary System Development Kit (BSDK) indicates the collection of information technologies we have chosen to develop our software solutions.

We use the server-side scripting language Ruby together with the development framework Rails (Ruby On Rails), fully applying architectural pattern Model-View-Controller and Agile development methodology. We have selected **Rails** gems and best **CSS3 Libraries** to reach the best results in terms of usability and effectiveness. Our main goal is providing to our partners an innovative and efficient tool with an eye- catching graphics. We avail ourselves of **HTML5 syntax and last generation Ajax Libraries**.

Our priority is to suit our customers' needs. That's the reason why each of our products is tailor-made and perfectly adaptable to every fix and mobile devices.

Following to these willingness and competences, we have created with our internal team of developers all our software solutions and built their main functionalities on intermediate frameworks developed internally in the company.We have chosen to supply our products with a **SaaS model on Linux Ubuntu LTS back-end** and **PostgreSQL** database, using multi-tenant technology to considerably reduce the employment of resources and ensure our customers the best software at competitive rates.

Our Software as a Service can be supplied from our **Google Cloud** service platform, or directly at customer's data elaboration center, where we can install and maintain each device dedicated to our services.

SOFTWARE SOLUTIONS TARGETED FOR THE RAILWAY SECTOR

All in your pocket.

If we were to summarize **SoftRail** in a few words, this is how we would describe this innovative and interactive software platform created for the management of railway business activities. A cutting-edge and at the same time simple and functional tool.

Fully developed with web and mobile technologies, **SoftRail** applications enable the integrated management of all these operations, including preparation and verification of resources, training and personnel coordination, lowering the Railway Undertaking's operating costs. Each module is completely independent and, at the same time, perfectly integrated with the other applications of the suite.

By digitizing all security and travel documents, **SoftRail** has improved the management system's profitability by speeding up the transmission of information, reducing the environmental impact of printing and the risks of error associated with it.

Real Time

Thanks to the synchronization of data in real time, **SoftRail** applications allow the integrated management of all operations, from the preparation and verification of the vehicles, to the training and coordination of personnel, reducing the management costs of the railway undertaking.

Database geographies

SoftRail applications communicate directly with the infrastructure DBs for the continuous updating of railway geographies in terms of service locations and routes changes or additions. Thanks to these integrations, the Suite modules are able to manage the lines and premises knowledge and allow the tracking of trains and track constructions.

Integrations with the infrastructure

The **SoftRail** suite's modules permit a continuous interface with the data provided by the infrastructures, allowing the railway undertaking to directly manage train cards, the distribution of the line files and to view the real train timetables directly from our software.

Multi-language

Designed with multi-language character, this solution allows to significantly increase the profitability of the system, digitizing the information and making easier its use to the various users who avail of the software's features.

LogiShift

LogiShift manages the coordinated programming of human resources and fleet resources minimizing the risk of incorrect planning. The software, in fact, provides visual tools useful for the periodic programming of resources, from weekly planning to daily operational management. Thanks to Logishift, fully automated and manageable even remotely, the railway undertaking is able to coordinate the work shifts, the use of the vehicles, the choice of tracks to follow, the staff qualifications and contractual constraints, checking regularly the production costs.

SkillPlan

Designed for instructors, **SkillPlan** is an application able to manage all training, updating and check activities (including the health) of human resources.
SkillPlan is a precise tool, ideal for planning and monitoring in real time the level of professionalization of human resources. Specifically, the software allows to manage the training activities (exams, retention courses, internships), to track the status of health visits (periodic checks based on age and health status, monitoring of the number of hours worked, etc .).

RailMobile

RailMobile collects, organizes and distributes all the personnel documentation: shifts, verification and updating of training, structural documents. The control flow of documents in electronic format allows the railway undertaking to constantly monitor the process of distribution to staff, based on skills and the type of documents. **RailMobile** centrally manages the delivery of technical documents on staff tablets, including the distribution of updates and registration of acceptance and delivery.

VerForm

VerForm collects and processes data relating to the technical verification activities, training and handling of dangerous goods performed in the territory, generating all the documents provided in electronic format, either on the basis of data directly provided by users or imported through H30 and/or TAF/TSI interfaces.

This documentation, in addition to being traced and stored directly in the system, can be provided in real time to the interested Organizations and to the personnel using application software in the field through the appropriate app.

MainTrack

Designed for resources that deal with vehicle management, **MainTrack** is an application able to manage all maintenance activities, from the anomaly of electronic reporting to interventions recording, from the calculation of maintenance deadlines to their management in terms of planning. **MainTrack** is a tool equipped to plan and monitor the fleet in real time, allowing the recording of maintenance activities (corrective and preventive), unavailability, rentals, Board Book with all the information related to it in order to allow use in operation.

TrainShunt

The application allows to manage the entire flow of the management of railway shunting activities in a simple and controlled way. **TrainShunt** is able to manage, in a single tool, the planning of programmed shunting activities and coordination, assignment and execution of daily orders, up to the data finalization and export to external systems for billing and registration of operations.

LogiShift

LogiShift is a management software for the activities of railway undertaking. In particular, it is able to define the use of the means and the employment of personnel within work shifts to cover the requested services, in compliance with the specific qualifications required. The application also allows to sort the tracks to follow by grouping them according to geographical criteria and based on the staff availability.

Flow for planning and definition of shifts

The system generate the roles assigned to the employee during his work shift, allowing the control of all the functions enabled on the single section of the railway network (Machinist, Verifier, Trainer, etc.).
The flow is divided into three phases: period planning, scheduling weeks and daily operational management.

Monitoring

By checking the available tracks, **LogiShift** monitors the production in a specific time window. Availability management and updating allow an overview of the human and rolling resources available.

Registries

All the resources from which the entities draw their data can be defined in a setup section, in the group of "registries", with regard, for example: tracks, wagons, locomotives, employees, roles ....

Controls for the assignment of shifts

The system supports the planner in verifying the requirements necessary for assigning shifts by identifying for each employee:

• Availability
• Service authorization
• Respect of the national contract constraints

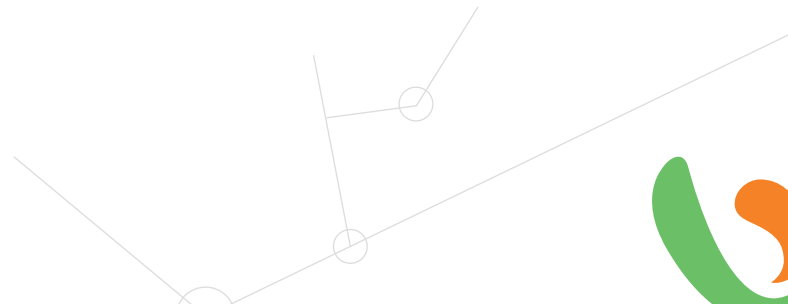## Operational management of shifts and tracks

Production management deal with shifts and tracks by applying the variations related to the service: change of actual hours, suppression and variation of tracks and shifts, staff changes and availability of extraordinary tracks.

Interfaces

Through standard interfaces, the data obtained from the shift balancing can be used by other SoftRail suite software or by external systems dedicated to the issue of staff payrolls and for an accurate control of running costs.

Mobile management

Communication with the end user takes place through the **LogiShift** app, thanks to which all the information in real time related to shifts, stamps, expense reports, holidays and unavailability are exchanged between the employees and the operating room.

Rules for revenues calculation

Through the creation of main and/or accessory rules, tariffs are assigned to train service types by setup; they determine the billing of the train based on the customer's needs (eg Tons, km, weight ranges, etc.).

Operating flow of revenue calculation

Once the contracts and the associated tariffs have been set up, the train is inserted on the LogiShift application and compiled with the commercial data. The calculation of the revenues allows, then, the visualization of all the information related to the operational and contractual aspects of the train; it also defines the billable and/or to be confirmed trains. This function also allows to filter the various types of contract and/or price list for greater clarity in reading data. Once confirmed, the data are formalized and inserted in the personal data of billable elements, ready for the final invoice. In this section there will also be a "Historical" subsection that allows the user to check, for one or more contracts, which trains have already been marked as "Revenue to be invoiced" until then, so that it is clear the progress of control work and calculation of the revenues of the various customers.

Registry of invoices

In the specific subsection the user can select a customer and view all previously issued invoices, the trains invoiced, and any invoices in "Draft" status. It will be possible to export the main data relating to the invoices displayed in Excel format, as well as to download a copy of the invoice in pdf format previously issued.

Billing and export

In the invoices list it is possible to view the official calculation entries available to be included in the final invoice document; the user can then select those of interest to complete the document and make the draft created for the export.

The invoices produced by the system can be exported to the external billing software through a shared code or directly from the LogiShift application by downloading 3 types of files: PDF copy of the railway company, PDF copy for the customer and excel summary of the invoice information.

It will be possible not to invoice some products that would be of competence in the invoiced period, in order to billing them in a subsequent turnover period.

The invoice generated will be in "Draft" status; this will allow the user to view a preview of both the contents and the form of the invoice, in order to check the consistency and completeness of the data. The user can then proceed to pass the invoice to the status "Officialized".

Billing not related to trains

The system has a section called "Billing not related to trains" which follows the standard flow indicated for the issue of invoices, but without the need to perform billing from "billable trains" of LogiShift. This operation takes place through an interface that easily allows to insert a list of activities to be billed and the relative cost (for example shunting operations, logistical services); from them the flow will continue according to what previously defined.

Operative research

The optimization module allows the LogiShift application to produce a resource planning in order to guarantee considerable savings for the railway undertaking. In fact, through a calculation algorithm, it is able to identify the best combinations of resources in operation to optimize their use; this feature autonomously allocates them in the shifts to be covered according to their availability and ratings, creating already the necessary connections to reduce the burden of personnel on duty between one service and another, such as resting away from home and personal cars using.

Optimized study

The construction of the optimized study aims to minimize costs for the railway company and to cover trains with the correct number of pairings/train drivers, to manage a proportionate distribution of resources, crew bases and line knowledge.

The advantages that follow are:
- Ability to quickly test many different scenarios;
- Control of important solutions, reducing costs for night shifts to a minimum, limiting the use of crew modifications;
- Correct distribution of production on different bases;
- Creation of multi-base pairings to increase the robustness of the solution.

Optimized scenario

Considering the number of people involved in the planning, the Scenario functionality helps the user to create the anonymous work shift according to the contractual conditions.

Each assignment will have a weekly rotation with the possibility to change certain days or exceptions.

This allows you to quickly test different scenarios and to integrate various supported rostering concepts for different groups of crews using multi-base pairings to increase the robustness of the solution.

Using models and optimization algorithms within a different organization, it is also possible to resolve any interruptions on the day of the operation.

Results

The purpose of implementing operational research is to reduce and anticipate irregular events as much as possible, minimizing the consequences of irregularities. As a result, the railway undertaking is able to minimize the cost of reallocation, loss of income, increase in costs to rebuild crew employment, quickly restoring the normal environment.

SkillPlan is an application designed for the management of training activities, professional updating and monitoring of previous skills, human resources of the railway company, including health visits. Thanks to this tool, the Instructors can plan and monitor the training and verification of personnel (exams, courses, internships, checks, etc.) necessary to obtain and maintain the various licenses and qualifications.

Calendar

The dynamic calendar with daily, weekly or monthly views allows the instructor to monitor the planning of activities and verifications by switching on the individual details.

Employee management

The "employee card" allows you to view and edit information related to:
- personal data
- obtained and verified qualifications
- required and planned medical visits
- activities planned and fulfilled with related outcomes and any planned corrective actions.

Knowledge of plant lines and vehicles

The system manages for each qualification the possibility of associating the Knowledge of Lines, Plants and Means; if SkillPlan is connected to the LogiShift module, the deadlines for this knowledge are updated automatically by the latter. In particular, the Lines Knowledge is managed separately by direction allowing the control in detail of the status of each employee.
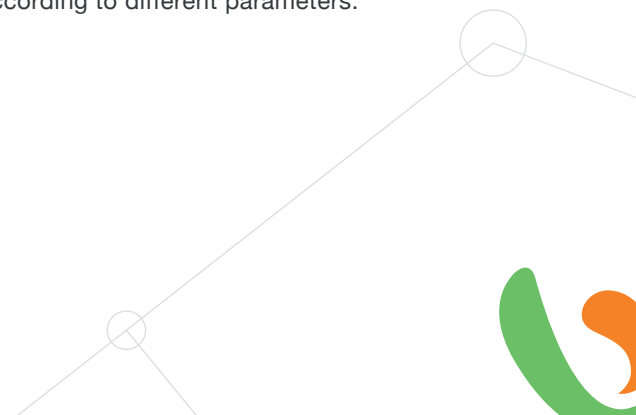
Planning and finalizing of checks

The software allows to fully verify the collected data and to analyze details such as validity dates, associated authorizations, employees and instructors involved, thus monitoring the results achieved by each resource.

Participant activity and register

The system allows the programmatic management of the activities thanks to the guide interface for the compilation of the characteristics, then defining: category, reference legislation, associated authorizations, type of activities, etc. Furthermore, employees included in the "participant register" can be associated with individual activities.

Statistics and reporting

The overall vision of the activities is guaranteed by the management system provided by SkillPlan that provides the instructors with a tool for extracting reports and allows to identify the set of skills to be maintained and the checks carried out and planned, divided by qualifications and filterable according to different parameters.

RailMobile

COLLECT, ORGANIZE, DISTRIBUTE

RailMobile is a software designed to manage all personnel documentation, monitoring their regularity and distribution status in real time. A real "electronic driver's bag" that allows defining distribution rules based on the characteristics of the personnel and the type of document to be assigned.

Infrastructure and requirements

The Document Distribution System stores and coordinates the management of documents for personnel. The sending of the documentary material takes place via telematic directly on the tablets and smartphones supplied to the staff.

Document distribution flow

The documents are inserted into the system that centrally manages their delivery on the staff's tablets, including the distribution of updates, the registration of successful delivery and their acceptance. Through a mechanism of authentication to the system of the tablet device used, the access of a new user is managed. At registration, the documents associated with the tablet are automatically downloaded and subsequently the system is notified of the success of the operation.

Insert new documents and version updates

When a new document is placed in the system, each employee assigned to it will receive a notification. The software inserts updates into the system by associating them with a summary document. The staff assigned to the insertion indicates the documentation recipients; then the system automatically sends to them a notice via e-mail and/or text message. RailMobile also offers the possibility to browse through the different versions revisions of each document. If the user is consulting an obsolete version of the document, the software will indicate the need to update it.

Data Collection

RailMobile gives the possibility to create different custom forms that users can fill in. Forms are modular with a wide range of buttons, folders, text fields, options and selectors of multimedia files. When the user sends the completed form, it will be saved on RailMobile to export the data in order to manage the result via web.

Alert

It is possible to activate notification alerts to the function managers or to the final users. Depending on the type of alert, RailMobile allows to set recipients via email address, time interval for sending and types of documents to be included.

Multi platform support

RailMobile supports the following platforms and devices:
• iOS devices (iPad)
• Android smartphones and tablets

e-learning

Online courses

Library access

Video lectures

SIGN UP

Learn anytime, learn anywhere.

Assisted training

The E-learning module, integrated with the RailMobile application, allows figures such as Instructors/Examers to register in the system a Training Activity to be carried out, indicating the list of Participants selectable in a punctual manner or through Distribution Rules and the date within which the activity must be performed. For each of them, the user defines an ordered list of Forms that constitute it and the relative tests to be overcome by the user.

Activities

The activity, from tablet, will be usable both OffLine and OnLine. The system, for each participant, will record the consultation time of each teaching modules and the total time of the activity. It is possible to use different types of content, such as .pdf; video (with pause, forward/backward) and SCORM content, including video browsing inhibit functionality, need for completion, etc.

Tests type

The application allows the creation of various types of tests, also usable by both OnLine and Offline tablets, through which the user can establish:

• the number of questions to be composed of and the type of expected response;
• the available time for carrying out the test;
• the minimum number of correct answers for passing the test.

If it is an intermediate test, the system will evaluate the reference teaching material consultation's duration and completeness of the user to allow access, only in case of congruity. Once the test or the time available has been completed, the system will calculate if it has been exceeded; in the affirmative case, the user can proceed to the next module while, if not, it will be able to view again the teaching material of the module in question and perform a new test.

Similarly, the user can provide for the Initial/Final Test. The system, for each participant and for each test, will record the time taken, the answers provided, the corrections made during the evaluation phase, the outcome and any action chosen by the user.

Forums and questionnaires

At the end of the activity, regardless of the outcome, the user can fill in a satisfaction questionnaire for the evaluation of the quality of the course an anonymous form. The system will record the answers provided, process the data and make it available for consultation. In addition to reporting on registrations, the system will be able to provide:

• Certificates of the course, based on the formats defined by the company;
• Alert e-mail to highlight any users who have not yet completed the planned training activity, or on intermediate tests not exceeded twice;
• Dashboard for consultation of the progress of activities by the Instructors.

It is possible to use a forum for each activity, so that each participant can expose their questions/doubts and receive a response from the instructor staff, involving in the discussion, at the same time, the other participants associated with the activity.

VerForm is a software for collecting data concerning train verification and formation activities that can generate the related electronic documents for the certification of activities (travel, relating to vehicle checks, etc.). These documents are provided in real time to the personnel of the company concerned.

Basic features

Through the use of a browser, the application allows centralized management of accesses from the various offices of the company located in the area. Thanks to the use of the most innovative web technologies, **VerForm** allows to record the verification and formation activities by filling in forms specially developed according to the needs of the railway undertaking and the regulations in force.

Train composition management

The insertion box with autocompletion facilitates the management of the wagon codes already present in the system. Moreover, the dragging order of wagons and locomotives simplifies the definition of the train.

Wagons registry

The software provides a detailed registry of wagons, locomotives and locomotor groups available. This registry contains all the information necessary to manage train verification and formation activities.

Global vision

All activities can be managed through a simple calendar interface that offers a complete overview of the work done and the intended one.

Management of labels and anomalies

VerForm allows complete monitoring of the railway wagon. For each wagon it is possible, in fact, to insert any verification labels and define the list of anomalies found by indicating the relevant codes as they are reported in the specific regulatory documents.
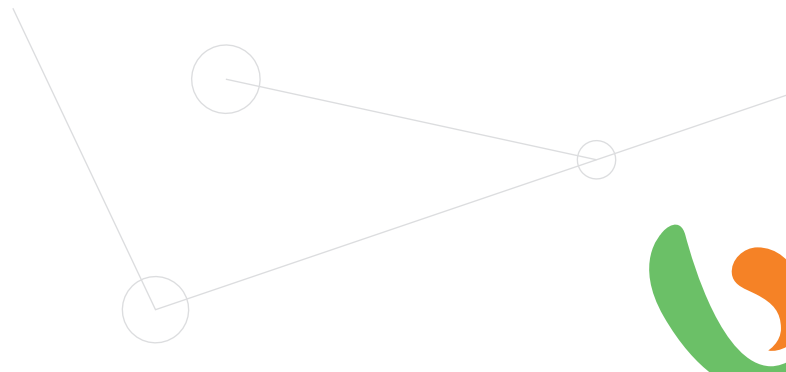
Goods Management

The formation section allows the insertion of all the information regarding the transported goods, including those dangerous according to the RID.
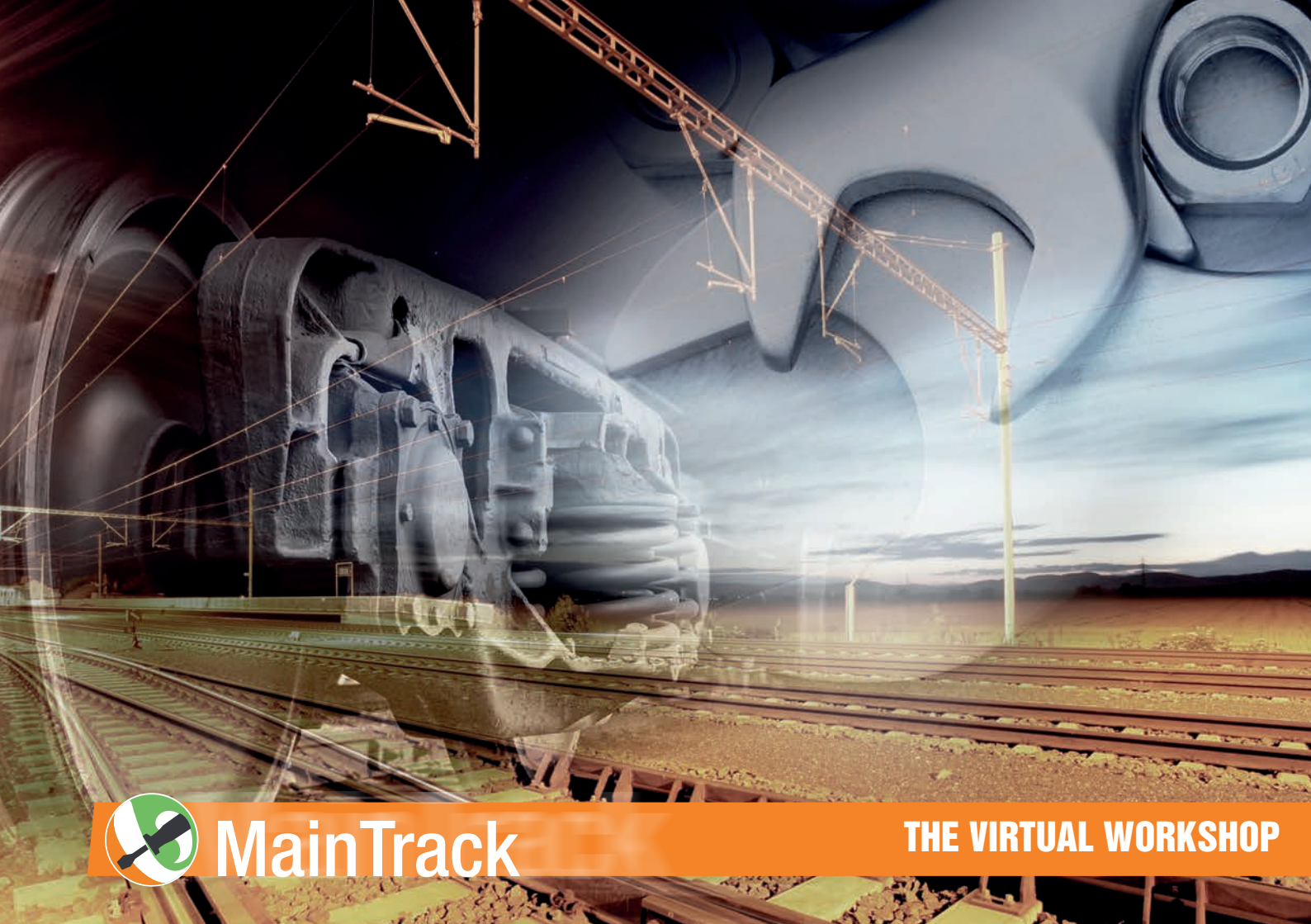
Communication

The web structure ensures remote connections to the server and the usability of software from mobile devices.

Mobile management

In addition to being fully compatible with mobile devices thanks to the technologies used, **VerForm** is also equipped with a dedicated APP that allows, similarly to the web version, the recording of the operating activities of interest.

MainTrack

MainTrack software permits to manage the fleet maintenance of a railway undertaking, which allows to plan and monitor preventive and corrective maintenance activities, managing all information and communications in electronic format.

Calendar

The dynamic calendar, with daily, weekly or monthly views, allows the user to monitor the planning and execution of activities by accessing the individual details.

Fleet

The system allows to record and manage information related to:
- Personal data of the vehicle fleet
- Lists of equipment and technology of each vehicle
- Maintenance plans and related updates
- Information of interest for the activities in question (execution of registration and simulation, compared with any contract restrictions, unavailability, ...)

Planning and accounting of maintenance activities

This software verifies the entire data collection and can also analyze details such as meeting deadlines, reports received for each vehicle, historical interventions, workshops and employees involved.

Data management

All information is archived in electronic format, from reports of anomalies indicated by the drivers and/or by the inspectors to the records related to the intervention carried out by the "laboratories", in order to obtain more efficient communications and ensure the traceability and availability of the resources involved.

Statistics and reports

The overall view of the activities is ensured by the management system provided by **MainTrack**; it offers its users a tool for extracting reports related to each activity performed and to each vehicle of interest. Furthermore, in accordance with the General Contract of Use (GCU), if implemented, the system also allows the electronic issue and presentation of Appendix 4 to interested parties.

Management from mobile

MainTrack is also equipped with a dedicated APP that allows the display of the vehicle Logbook. In particular, through the APP it is possible to visualize the anomalies occurred, the restrictions of use, reporting in real time any further anomalies found on the vehicle during its use.

TrainShunt

TrainShunt is the new SoftRail suite software created to manage railway shunting in a simple and controlled way.

Plant configuration

TrainShunt allows to configure a registry of the plants on which the shunting company operates. For each system it is possible to configure the track diagram that takes up the structure of the same, characterizing each track by an identifier number and a maximum length; there is also the possibility to notify the user if it positions on the track a too long train composition.

Shunting order management

In the programming section, the user can enter the programmed shunting requests (primary, secondary, internal), characterized by times, frequency, detailed information and billing. During the coordination phase, it will be possible to update the programmed requests and thus create the daily shunting orders, or to register ex novo new shunting orders. For each daily shunting order it is possible to register the received MAD (form 6A) and to send the communication of the material delivery form to the railway undertaking (form 6B).

Interfaces

The system allows communication with external software and systems in relation to the reception of shunting orders, in addition to the automatic importation of incoming train composition and the sending of information related to the train lists of the outgoing trains. All the final data can also be exported to management systems for billing or management control: the data collected by **TrainShunt** during the shunting management allow to summarize the information necessary for order billing, simplifying the processes and ensuring greater reliability.

Mobile

TrainShunt is natively designed for mobile use. The Depot operative user can assign shunting orders to a team leader, who can take the order from the tablet, have the operations carried out by the team and confirm the execution of the same.
It is also possible to record from mobile operations not foreseen by the Depot operative.

BinarYsYstem

You know what you need; we know how to give you

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