Depot Management

PSItraffic/DMS
The Digital Depot for Your Vehicle Fleet

PSI

Digitizing Your Depot.
If Not Now, When?

Efficiency Across the Board

Conventional systems and analog workflows quickly reach their limits, illustrated by typical arguments like these:

- The diversification of your vehicle fleet
- The mapping and monitoring of charge levels and remaining ranges
- Restrictions and constantly changing requirements for vehicle allocation
- Specifications for achieving ecological goals, as well as resource bottlenecks.

In cases like these, our PSItraffic Depot Management System (DMS) is the right solution to support you.

Our DMS enables your transit operations to be reliable while complying with your specifications and requirements. The system ensures that your buses and light rail trains (LRTs) are ready for daily operations and are dispatched onto the correct route. It efficiently monitors and controls all processes in your depots – from vehicle arrivals to their supply, maintenance and parking – in a way that saves resources and reduces costs. Our integrated, intelligent dispatching optimization makes the best possible decisions in seconds and supports your dispatchers in cases of operational deviations.

PSItraffic/DMS digitizes your depot processes, establishes a continuous, digital workflow and integrates all areas of your operations: the best prerequisites to begin mastering the many complex tasks in the depot.

DMS, AVMS, CMS –
All from a Single Source

Adding an AVMS and charging management system seamlessly expands the DMS into a complete system. With a direct connection to every AVMS, you always have a clear overview of your vehicles, even while en route. In case of disruptions, you can quickly react and make all the necessary arrangements for replacement vehicles or vehicle service. Continuous data flows eliminate the need for redundant entries thanks to the standardized interfaces used by the DMS. Processes are automated and alleviate support work and workflows in the operations center.

Emission-free fleets can also be integrated into the system. Whether your buses are powered by diesel, CNG, hydrogen, synthetic fuels or electrically (battery or overhead catenary) – PSItraffic monitors and controls all operating vehicles at the same time. Integrated charge planning and the direct connection to PSIs own (or a third-party) Charging Management System (CMS) allow optimized control of all charging processes for your electric buses.

Prepared for the Future

Our modular solution can be scaled and expanded to nearly any size and is therefore especially future-proof. The use of standardized interfaces for data exchange enables the greatest possible manufacturer independence.

Whether in disposition, in the shop or during vehicle servicing – the optimization potential is enormous. PSItraffic/DMS creates transparency and maximum efficiency!
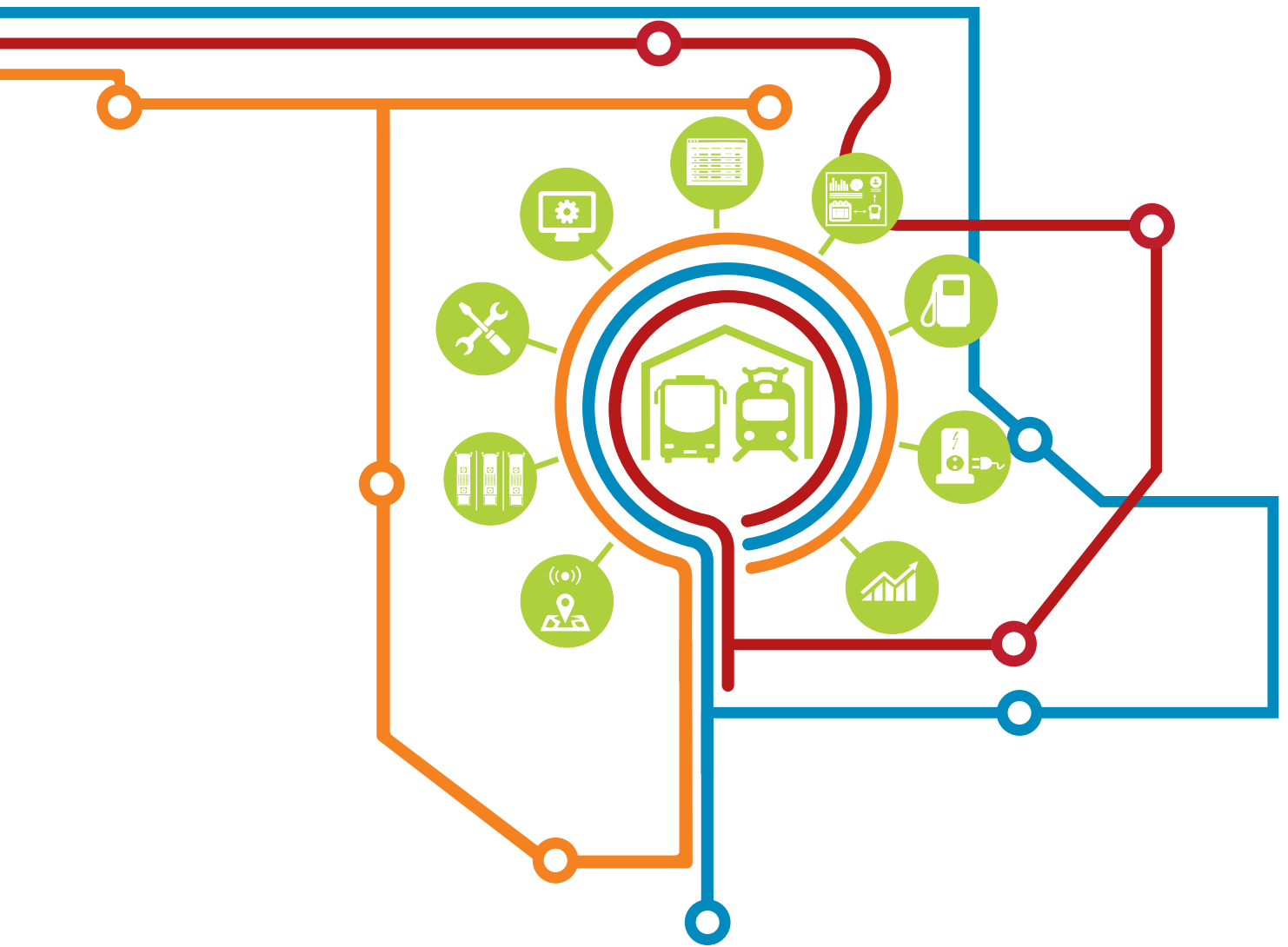
Many Tasks. Solved Simply.

The modular structure of PSItraffic/DMS and the extensive functionality that has grown over many years allows you to meet your customized project-specific requirements and execute a phased rollout that fits your needs. Modules can be configured individually or in combination according to your requirements.

Vehicle Identification and Location Tracking
Modern tracking methods are extremely precise. Locations are displayed graphically in PSItraffic and form the basis for the work of dispatchers and employees in the shop and in service.

LRTs can be controlled by connecting them to a vehicle and switch control system. In this way, routes can be set automatically, and vehicles entering the depot can drive directly onto the destination track with no waiting time.

Parking Spot Assignment
PSItraffic/DMS assigns parking spaces to the vehicles that are shown to drivers on digital displays when they enter the depot based on whether the vehicles are to be serviced, maintained, repaired or immediately used for the next route.

Shop and Service
The DMS manages all shop, maintenance and service work, as well as unplanned vehicle downtimes. These can be (automatically) generated in the DMS, taking into account required resources. They can also be imported from the respective ERP systems. As vehicles enter the depot, upcoming work is considered as the vehicle is being parked.

Dispatching

Dispatching is at the heart of the DMS and ensures that vehicles are parked in the depot in such a way that all routes can be served. If a vehicle is not ready for operation, a new route dispatching schedule is automatically generated in real-time. The basis for this is PSI's proprietary intelligent optimization algorithm QualicisionTM. Dispatching can be manual, partially or fully automatic.

Operations

All system information is displayed in the form of an operational view or in table views. This provides a real-time overview of all data available in the system, including parking space capacities, vehicle locations and statuses, and the functionality of the infrastructure (e.g. charging stations).

Driver Information

In addition to personnel clock-ins and clock-outs, the DMS also shows overall attendance, route assignments, as well as associated accountability requirements. The DMS uses stationary terminals, displays or mobile terminals to inform drivers about the assigned route, vehicle location and status. Simultaneously, the system informs dispatchers about the punctual departure from the depot.

Optimized Refueling

PSItraffic/DMS has precise information about when, where, what and how much fuel was dispensed.
This enables the system to calculate the remaining range, a central decision-making criterion for route scheduling. Refueling can be optimized according to the consumption values of the vehicles.

Charging Management

Directly connecting to the charging management system ensures that your electric buses are sufficiently charged and preconditioned in time for the start of their route. The basis for this are range forecasting and scheduled charging. They emerge from the consolidation of the vehicle master data and all variable vehicle and consumption data collected during daily operation. Vehicle preconditioning is automatically completed just in time before the start of the route. Interfaces to leading charging station manufacturers give you peace of mind and the greatest possible flexibility in selecting the appropriate supplier.

Quality Management

Archived operational data can be analyzed and rendered in standard reports and statistics. The data can be automatically exported to external systems, providing you with an overview or proof of compliance with your company's KPIs at any given time. Additional custom reports can be configured independently by system administrators.

A Complete System Allows You to See Everything at One Glance.

Our DMS is also available as a complete solution that's bundled together with the AVMS.
The system models all processes in the operational business: from driver and vehicle dispatching at the depot, to operations control, ticketing and passenger information, as well as comprehensive analyses and evaluations.

The advantages are obvious
+ Seamless processes
+ Uniform data storage
+ Reduced interfaces
+ Improved data archiving and evaluation
+ One central server, one database

In Focus:
The Strenghts

Modular
The openness and flexibility of PSItraffic makes it possible to assemble, expand and configure the modular software components according to your requirements. One of the strengths of the system is that it is highly configurable without having to be stopped, let alone reinstalled. The comprehensive pool of existing functions enables a quick system implementation without the need for additional development. This also requires fewer resources on your side.

Scalable
Both, market requirements and the technical environment evolve over the service life of a DMS. Thanks to the modular structure of PSItraffic, you can react flexibly to future changes. This especially ensures the possibility of extending the system to any number of depots, vehicle types, subcontractors and external facilities.

Open Interfaces
For years, we have been promoting the development of standardized interfaces for all relevant areas in collaboration with other suppliers. This includes our participation in defining the VDV453/454 interface, the VDV461 interface for linking AVMS and DMS systems, and the VDV463 interface for connecting DMS and charging management. VDV are German transportation market standards widely accepted in Europe. Thanks to our extensive experience in the field of interface development, we can guarantee the ability of integrating all peripheral and third-party systems.

Process Optimization
The dispatching core used for process optimization is based on PSI's own QualicisionTM AI software, which reliably finds solutions within seconds while including predefined operating conditions. QualicisionTM is characterized by an outstanding optimization speed with very high-quality solutions. The system always finds a solution, taking into account a wide range of restrictions and qualitative criteria that can be switched on and off online and which can be configured based on the time of day and with prioritization.

Cloud-Capable
PSItraffic/DMS can be easily virtualized and migrated to the cloud – even together with AVMS. Client systems, and with this most importantly all of the interfaces used by the dispatchers, run independently of the backend on any environment, from desktop PCs to virtual environments including smartphone apps. The backend system, comprised of databases and application servers, runs autonomously in the cloud. Besides cost savings thanks to the elimination of hardware acquisition and maintenance costs, flexible scalability is a major benefit.

Reasons Customers Choose PSItraffic

+ Efficient AI-based dispatching through Qualicision within seconds that considers all operational and environmental factors

+ DMS, AVMS, charging management, and personnel dispatching – all from a single source

+ Integration of bus, light rail, subway, emissions-free and other fleets, scalable to any number of depots

+ Integrated monitoring of the entire operational situation in the depot and on the route

+ Transparency for the entire fleet status

+ Transparency across all areas of the depot – shop, supply, personnel

+ Optimal vehicle availability

+ Short system implementation phase

+ Open Interfaces

+ Manufacturer and hardware independence

+ Flexible, future-proof software architecture

+ Real-time data availability

+ Integrated quality management

How PSI Customers Have Benefited

40
Percent

Less refueling processes thanks to integrated tank optimization

4,000
Dollars

Cost savings per event through prevented trip cancellations

10
Percent

Time savings per day by eliminating supply duplication

0.5
FTE Years

Saved by using automated driver registration

5,000
Hours

Saved per year through reduced vehicle search times

20
Percent

Time and cost savings per day through reduced maneuvering

PSI Transcom GmbH

Dircksenstraße 42–44
10178 Berlin
Germany

Telefon: +49 30 2801-1610
info@psitranscom.de
www.psitranscom.com

PSI