

Workshop Integrated Into Daily Operations: Daily Workshop Module



PSI 

Status Quo

Lack of coordination between the workshop and operations

Almost every transport company is familiar with this situation: Time and again, vehicle bottlenecks occur in daily operations. This is often caused by media discontinuities between the systems that control the opera-

tional process and the IT in the workshop. Due to our proximity to operational processes in operations and the workshop, we have experience of the following:

General Situation

- The planning of workshop processes is often based on target data.
- There are media discontinuities between operations and the workshop.
- There are duplicate entries of workshop orders in the Depot Management and Workshop Management System (DMS and WMS).
- Keeping lists is error-prone.
- A high vehicle reserve acts as a buffer for last-minute operational requirements.
- This is associated with significant capital commitment

Vehicle ordering on the basis of deadlines

Workshop orders are often planned exclusively on the basis of maintenance and cleaning intervals. However, since daily operations are subject to numerous unforeseen influences, such as vehicle breakdowns or delays, companies rely on a larger vehicle reserve.

Bottlenecks occur time and again

In situations such as employees calling in sick, operating resources breaking down unexpectedly or vehicles requiring repair, procedures may need to be changed at the last minute, which pushes existing systems to their limits. As a result, vehicle bottlenecks and an imbalanced utilization of workstations and employees are inevitable. Consequently, less vehicles are available. This means that a larger vehicle buffer is required for operations.

Outlay due to separate systems

While IT systems such as SAP, Navision or Maximo have been in use in the workshop for a long time, their interlinking with the systems in use in operations (DMS or ITCS) is often lacking. The Workshop Management System plans the deadlines and procures the material, while the Depot Management System usually receives the vehicle orders and blocks for workshop tasks. However, the vehicle selection process, as well as the detailed planning of the work processes, takes place outside the DMS and without feedback.



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Optimally Dovetailing Workshop and Operation

The right complement: “Daily Workshop”

The planning of workshop orders should therefore be handled by a system that is familiar with the operational situation in the depot – the DMS from PSI. The Daily Workshop module forms the optimal interface between workshop and operations.

Complementing existing systems and processes

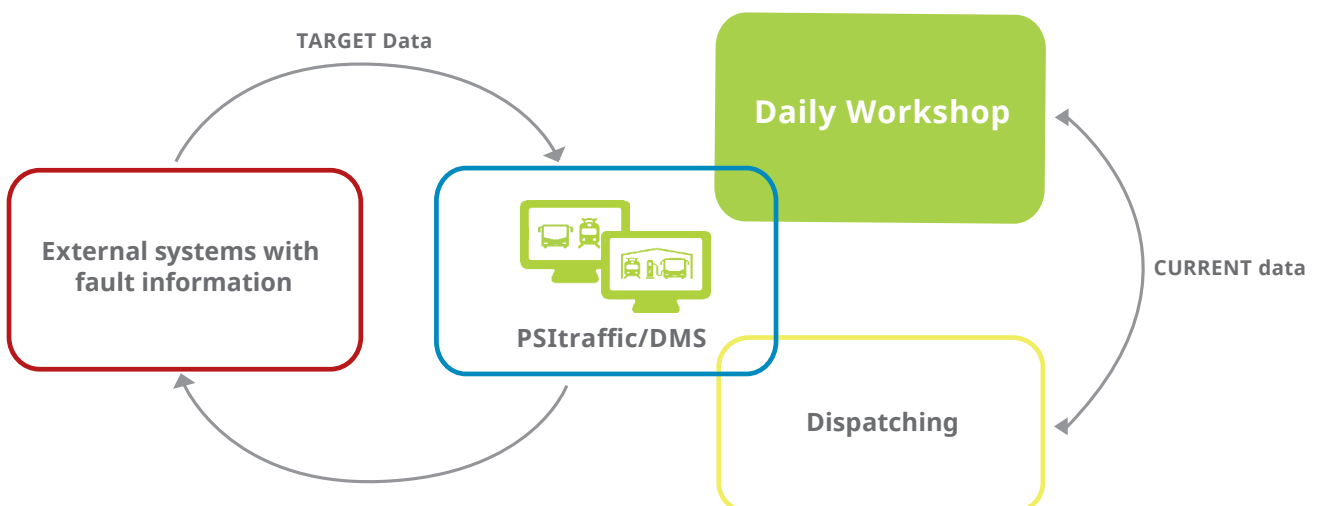
The Daily Workshop module represents a connecting bridge between the workshop and operations. It aims at both a secure operation and a balanced utilization of workshop resources and available employee capacities. This eliminates media discontinuities and error-prone duplicate data entry. To achieve both these objectives, the system schedules incoming workshop orders – fully automated or with manual processing options, as desired. Additional criteria that can be prioritized individually may be incorporated into the planning decisions.

In harmony with day-to-day business

Algorithms have been used to support operations in a familiar way for a long time. However, existing workshop systems often lack these automatisms. Therefore, established planning systems can only incorporate information at the time of order planning – usually one day in advance (TARGET data). They do not take dynamic operating processes or operational disruptions, which sometimes significantly change day-to-day business, into account. The same applies to the required resources, particularly employees and work statuses, work equipment and tools.

All these aspects are subject to dynamic changes. When intelligent algorithms take these changes into account automatically, efficient, smooth operation (CURRENT data) is ensured.

The Daily Workshop module bridges the gap between workshop, operation and the respective flanking systems.



Vehicle selection



- ✓ Vehicle selection takes maintenance, inspection and cleaning intervals into account.
- ✓ Restrictive specifications ensure operational reliability.
- ✓ The data basis is the data-carrying system of the operation.
- ✓ Staff capacities and resources are evenly and optimally utilized in line with individual prioritization.

Automated scheduling of work orders



Daily Workshop...

- ✓ determines the necessary work steps in each case.
- ✓ derives the required employees as well as the required material per order.
- ✓ distributes orders based on completion dates, resources and capacities on individual working days.
- ✓ displays warning messages including suggestions for action in the event of unresolvable conflicts.
- ✓ adjusts daily schedules automatically.

Visualization and processing of work orders



- ✓ A two-part representation (Gantt diagram and tables) clearly shows the occupancy of workstations as well as the workload of employees on the respective days.
- ✓ The orders are processed automatically or via a manual dialog, if preferred.

AI-Supported Scheduling

Optimized planning decisions

The number of criteria that are relevant and at the same time dynamic is continually growing, which makes optimized planning decisions difficult. Thus, the use of a Depot Management System such as PSITraffic/DMS, including workshop management, which carries out planning using intelligent algorithms, is all the more valuable.

Cross-depot solutions in seconds

PSITraffic/DMS has an AI-supported dispatching core based on PSI's own decision engine: Qualicision. The software finds a solution across depots within seconds based on the defined boundary conditions.

Configuration of a wide range of decision criteria

What sets the system apart is not only the high speed of the decision-making process, which enables cyclical use in short time intervals.

What is also special is the ability to incorporate a large number of diverse restrictions and qualitative criteria into the calculations. The influencing variables can have various effects depending on the time of day and may be configured differently for particular depots of a company, activated and deactivated online or configured depending on the time of day.

In addition, weightings may be defined, assigning a higher degree of target achievement to certain individual criteria.

Automated planning adjustment

The system is capable of recognizing vehicle bottlenecks immediately and independently. It automatically adjusts the allocation in such a way that unsolvable, open rotations are moved into the future.

Thus, the risk of error is reduced to a minimum and there is sufficient time to find a solution.





Powerful Advantages

- + Existing systems can still be used as normal.
- + Vehicle availability is significantly improved.
- + Workshop orders are planned in one system – without media discontinuities.
- + CURRENT data is used for dynamic operational processes and operational disruptions.
- + No duplicate data entry is required.
- + Error-prone workarounds are minimized.



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