

Quick and economic deliveries

A GPS-AIDED ROUTE OPTIMIZATION AND INFORMATION SYSTEM FROM THE CSB-SYSTEM AG COMPANY, GEILENKIRCHEN, GERMANY, ENSURES EFFICIENT LOGISTICS PROCESSES AND AN ENHANCEMENT OF THE LIFE CYCLE ASSESSMENT



++ figure 1

+ An efficient vehicle fleet is one of the most important links in the supply chain and the supply chain management, respectively. Powerful delivery logistics are playing an increasingly important role and economic structuring of the logistics processes is becoming the focal point of entrepreneurial thinking. CSB-System AG offers a GPS-aided Route Optimization and Information System for optimizing these processes and for making the entire logistics extremely efficient. The system enables user companies to tap their optimization potential in the areas of coverage planning, route distances, capacity utilization, loading weight and volume as well as vehicle and labour utilization. Transport costs, the largest cost factor in logistics, can be reduced considerably and available resources can be utilized more efficiently.

Inefficient Manual Route Planning

Regardless of whether products or raw materials have to be delivered to customers, subsidiaries or company locations – the logistics processes are always complex and often have to be carried out within a very short time frame. A very close connection between production and dispatch is imperative because delivery quantities and addresses are changing on a daily basis and the resulting adjustments to existing route plans require flexible and, above all, fast reactions. In practice, however, many companies still plan their routes in the

conventional way, i.e. without any IT support. Deliveries to new customers are often integrated in route planning intuitively and are based on experience. Alternatively, blanket routes are created to which the orders are allocated.

The possible disadvantages of these approaches are evident: vehicle overload or under load, failure to meet delivery dates, utilization of unsuitable vehicles and expensive emergency tours in the case of complaints are the usual results of bad planning procedures. In the case of delivery mistakes, customer satisfaction might be at risk in the worst case scenario. The GPS-aided Route Optimization and Information System enables user companies to realize continued improvement of their transportation processes as well as optimal route planning including automatic generation of transport orders. During route optimization, all customer, time and vehicle restrictions are taken into account. This automatically includes any specific time periods during which deliveries have to be made to individual customers, as well as capacity utilization of the vehicles based on the type of vehicle, vehicle availability, the drivers required and their licences.

When the optimization system has calculated the route data, it is transferred automatically to the vehicle control system. An on-board computer, which is installed directly in the driving cab, visualizes both the route and the navigation for the driver. Equipped with mobile data capture and a printer, the on-board computer actively supports all goods logistics



++ figure 1
Logistics processes need to be fast and efficient

++ figure 2
The route data calculated by the optimization system is automatically transferred to the vehicle control system. An on-board computer which is installed directly in the driving cab visualizes the route

processes. It also documents all details of the tour, e.g. deliveries, returns, reusables, distances, opening of the cargo area doors and temperature of the vehicle's cargo area. At the end of the tour, the data is directly transferred to the CSB-System. Alternatively, the data can also be transmitted online via GPRS so that vehicle positions and the status of the vehicle fleet can be viewed online at any time.

The economic benefits of the Route Optimization and Information System compared to conventional planning are manifold and measurable:

- + Automation of the optimization process reduces expenses for route planning (coverage planning) considerably and eliminates errors
- + By calculating the optimal route, both mileage and vehicle costs (fuel, wear, maintenance) are reduced by ca. 10 % to 20 %
- + Minimization of the driving times lowers the working time of the drivers and personnel costs
- + Reduction of vehicle usage to a minimum downsizes the vehicle fleet and related costs
- + Improved staff flexibility through "guided" routes: every driver can be deployed on every route
- + Documentation of observance of the cold chain and all door contacts

Optimal Route Controlling

Processing of the route data is complemented with integrated route controlling and comprehensive route-related evaluations. These ensure maximum transparency and make it possible to spot any discrepancies immediately and to counteract them systematically.

In addition to evaluations of the driving and stopping times, vehicle fleet management can also monitor tolls and analyze the time a driver requires for his vehicle (refuelling, oil check, tyre check, etc.). At the end of the route, a software-aided

analysis shows any deviations from the target specifications and the reasons, evaluating the efficiency of the tour. Another beneficial feature is the integration of the CSB Travel Manager and Time Management modules. The data (driving and stopping times) is directly imported into the CSB Travel Manager without media transfer for calculating expenses, if there are no company-specific arrangements. The hours of service of the drivers are imported into the CSB Time Management module. This makes any manual recording redundant, reducing mistakes and providing reliable protection against manipulation as well as time optimization during data import.

Apart from its economic benefits, the Route Optimization and Information System also supports the important aspect of sustainability. Utilization of the system improves transport efficiency continuously for both car or truck fleets, ensuring better capacity utilization of the vehicles as well as a considerable reduction of fuel costs and CO₂ emissions. This has a positive influence on a company's ecobalance and improves its image. +++

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