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PSI 
Logistics

*PSIglobal –
for a global rather than
a local optimum*

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PSIglobal

Efficient control of logistics networks

PSI Logistics GmbH designs, realises, and optimises logistics business processes through consulting, IT systems, and IT services. Thanks to decades of experience with national and international customers from all branches, PSI Logistics can create and supply future-oriented solutions for operators and users of logistics networks.

These solutions are particularly characterised by low overall costs (total cost of ownership) and the maximum possible amount of overall benefits (total benefit of ownership). Added value potential can be evaluated and optimised in logistics by means of a comprehensive analysis of material flows with real costs. This is no longer a vision of the future. ERP, WMS, and TMS systems are used to pull up representative data sets for strategic planning, analysis, and the optimisation of business processes. This means that such tasks are no longer reserved for

external consultants.

With PSIglobal, PSI Logistics has created software that enables the continuous evaluation and control of value-adding logistics processes that allow users to purposefully and efficiently model the processing of logistics projects both for strategic (e.g. location and structure optimisation) and for tactical (e.g. transportation network planning and warehouse capacity utilisation) matters. PSIglobal focuses on the planning, analysis, and optimisation of logistics networks. This enables the planning of distribution, procurement, replacement parts, and production networks. The planning and control software allows the modelling of multistage transports in order to control and improve the entire supply chain. By incorporating different transport channels, such as road, rail, and water, multimode transports can be modelled and included in the optimisa-



Modelling of global logistics networks

Location optimisation

Basis for strategic decisions

tion process. Thanks to the modular design, the system can be modified in line with the individual requirements of customers. The range of functions provided by *PSIglobal* covers the following areas:

- Analysis of logistics networks
- Simulation of logistics networks
- Location and structure planning
- Statistics and controlling for logistics networks
- Inventory and range optimisation
- Performance analysis for logistics networks
- Central accounting and service comparison

Visualisation of logistics networks

The analysis, planning, and optimisation of logistics networks is based, among other things, on the use of digital transportation network data (road, rail, and waterways data). *PSIglobal* allows users to draw on various multimode transportation networks. The planning, analysis, and optimisation of logistics networks is also strongly influenced by volume flows between production/warehousing locations and customers. *PSIglobal* manages this data in the form of master data and transaction data (location information and article, vehicle, order, and shipment data). Geographical and logistics data

is connected by means of geocoding. The address data of real locations is used to determine nodes and edges in the digital transportation network. Once the address location of real locations has been linked to digital transportation data, the real distances and travelling times can be determined. On this basis real values can be calculated and used for cost calculations.

Analysis

The analysis of logistics networks aims to detect possible weak spots and possibilities for optimisation. *PSIglobal* supplies different methods of analysis in the form of modules that provide transparency and identify possible bottlenecks in transportation flows and structures. The following analysis methods are available:

- Shipment structure analysis
- Quantity analysis
- Distance-based analysis
- Service level analysis
- Freight cost analysis

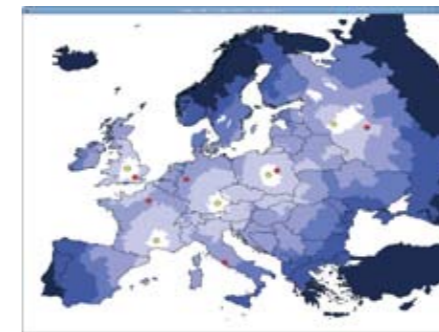
Transportation network planning

Multimode traffic networks

Planning and optimisation

One of *PSIglobal's* focal points is the validation and optimisation of logistics locations (for example, locations for warehouses and distribution centres).

Analysis and modification
of service times



The location optimisation module can be used to determine the optimum number of logistics locations and manage and manipulate different location configurations, and compare the results thereof. Users can choose between variable and fixed locations and the number and intended use of locations. Following a location optimisation, the following parameters are determined and displayed:

- Optimised placement of locations
- Use of locations
- Range of articles and inventories for locations
- Quantities in overall system
- Cost structure (cost types: warehousing, transportation, and handling costs)

- Customer service level
- Benchmark in current state

In addition to the determination of optimum locations, improvements can also be achieved without changing the number or placement of locations by determining the optimum allocation of transportation stages right up to delivery to the end customer. This allocation optimisation can be carried out across multiple transportation stages. In addition, minimum and maximum capacity values can be defined for the warehouse or for goods handling at group level for fixed logistics locations. The evaluation of logistics networks takes place using cost functions. For this process, *PSIglobal* can access numerous evaluation functions that incorporate transportation and warehousing costs and transportation and service times.

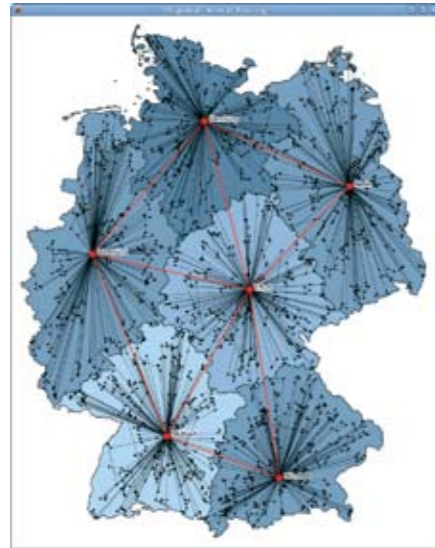
The network planning module covers special requirements relating to the network planning of logistics service providers, freight forwarders, and CEP service providers. The combination of different transportation chains enables goods destined for different customers to be grouped together and transported in accordance with cost considerations. The determination of hub-and-spoke locations is a focal point of network planning.

Following the determination of which customers are to have their goods delivered from which location, the

A global rather than a local optimum

Comparison of alternate results

Planning and optimisation of logistics networks: From the correct choice of warehouse location to delivery to the customer.



route planning module determines the number of required transportation vehicles.

Visualisation

The logistics networks are visualised using maps. This enables different transport stages to be shown along with their logical allocation and, if necessary, to be adjusted. Physical logistics locations (production facilities, warehouses, depots, and customers) are modelled using symbols on maps and the material flows are shown using lines that connect these locations. In addition, maps with various regional markings such as postcode areas or administrative districts can be displayed. Optional geographical/topological elements (mountains) or structures (roads) can be displayed and highlighted in

colour to facilitate orientation.

Scenario technology

PSIglobal enables the comparison of different logistics networks for evaluation purposes. This allows users to compare the results of analyses, plans, and optimisations both qualitatively and quantitatively. Moreover, the scenario technology enables the graphical modelling of the advantages and disadvantages of the various logistics networks and the differences between them.



Regional planning and analysis of procurement and distribution markets