# AMCS - RETAIL PLANNER
INTELLIGENT OPTIMISATION FOR THE RETAIL INDUSTRY

## Improving Retail Distribution and Trunking Efficiency

**AMCS Retail Planner facilitates major cost and $CO_2$ emission reductions in your inter-depot transport and your distribution of goods to the retail sector. The system decreases planning time drastically and assists you in improving your customer service.**

**AMCS Retail Planner is a leading standard system directed towards manufacturers and wholesalers which distribute goods to the retail sector as well as directly to end customers. The system excels in optimising master routes, planning daily routes and facilitating the execution of operations.**

## Retail Transport Optimisation

Retail distribution and transport is one of the more challenging transport types. However, the higher the complexity, the more to gain from introducing an advanced route planning system.

The complexity of the industry is the result of e.g. inter-depot transport, distribution from several depots, and multiple routes for each vehicle. On top of this comes a long planning horizon spanning strategic, tactical, operational and executional planning as well as follow-up. These are all areas in which the retail-specific planning system AMCS Retail Planner excels.

Central to planning within the retail sector is the creation of season-dependant master plans in which customers are visited according to complex sets of visit frequencies and patterns. Another important competitive aspect is the ability to move the visit days of selected customers in a controllable way in order to increase efficiency and spread volumes over weekdays.

Moreover, it is increasingly important to be able to integrate the route planning system into other internal IT systems. Receiving confirmed orders from the ERP system, exchanging routes and ranking with the WMS, and exchanging routes and status messages with vehicle mobile devices are central activities in order to obtain an agile, transparent and efficient supply chain.

Activities related to transport are major cost burdens, and the complexity and dynamics involved make it particularly difficult to manually conduct efficient transport planning. Hence, the potential for improving the efficiency of retail distribution and transport is very large using an advanced route planning system like AMCS Retail Planner.

AMCS Retail Planner is a revolutionary, sophisticated and easy-to-use IT system which covers the entire planning process for companies carrying out retail distribution and inter-depot transport.

The system represents a state-of-the-art enterprise solution, which features key elements of SOA technology and distributed architecture as well as multi-user access, scalability, advanced security and much more.

Moreover, the system has a high level of industry-specific functionality and configuration options aimed at solving the complex transport challenges within all central areas of retail goods transport, including trunking, distribution and back-haul transport.

AMCS Retail Planner makes key aspects in the planning of retail goods transport more efficient. Significant improvements can be made in the following areas: Planning with different visiting frequencies and patterns; converting master plans into operational plans; choosing distribution depots and vehicle types; integrating ad hoc and fixed orders; dealing with weekday and seasonal variations; and analysing long-term logistic structures (depots, service levels, etc).

# Benefits and Savings

## Benefits

AMCS Retail Planner has been implemented in retail companies of various sizes with great success.

By using AMCS Retail Planner, companies dealing with retail distribution improve operational efficiency significantly and realise major savings on transport costs.

Companies normally experience the following benefits:

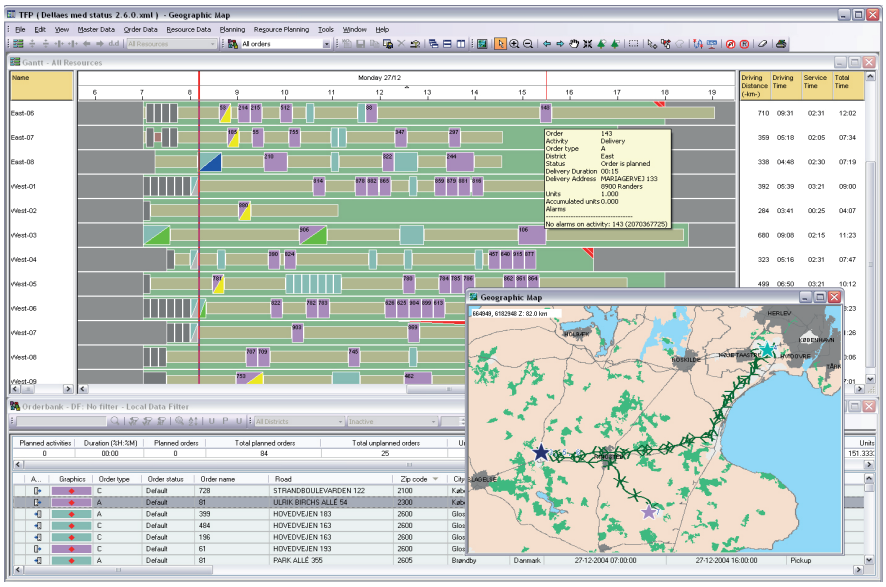
- A reduction of 5–15% in operational costs (km, time, trucks), and a major reduction in $CO_2$ emissions
- Strikingly improved customer service levels; close to a 100% service fulfilment rate
- Between 30 and 60% less time spent on planning
- Time spent on registration and follow-up reduced by 30–60%
- Significantly increased route quality, employee satisfaction and planning flexibility

AMCS constantly strives to raise the bar and is continuously inspired by our customers to further develop the system's algorithms, functionality and overall performance. Through such long-lasting partnership, the profitability and business value of our customers also continue to grow.

AMCS has 35 years of experience in developing and implementing advanced, automated planning systems. The company is the leading provider of planning systems in Scandinavia, and this position is now expanded internationally through the promotion of superior industry-specific planning systems.

AMCS Retail Planner is based on AMCS's standardised system platform, which has been expanded with a retail-specific functionality. The system has been delivered to many retail companies in Northern Europe, and through these AMCS has gained valuable experience in planning retail distribution.

Founded on this extensive knowledge, AMCS keeps improving AMCS Retail Planner to consolidate its position as the most advanced planning and optimisation system for the retail sector.



# AMCS Retail Planner

AMCS Retail Planner is a leading-edge, fully integrated system covering all aspects of retail distribution and transport planning.

The system consists of two system parts:

- A simulation environment for large-scale optimisation of master plans and simulation of what-if scenarios
- An operational environment for customer booking, operational planning, and real-time execution

The simulation environment is based on a stand-alone platform. In this, optimisation involving large quantities of data can be carried out, and a range of different planning scenarios can be created and compared before the master plans are finalised.

The operational environment is based on a true client/server platform, meaning that multiple planners can work simultaneously on the same data. This system part interacts with ERP, WMS and mobile systems in real time, and it is a superior tool for preparing operational plans and for executing the daily operation.

## Powerful Retail Features

In order to handle the unique demands within retail distribution and transport, the system is equipped with unique features such as the following:

- Planning based on advanced frequency and visit patterns for customers
- Handling of cross-docking and multi-leg planning for inter-depot transport
- Planning with flexible compartment walls for different temperature zones
- Replenishment planning for depots, based on both forecasted and actual sales orders
- Selection of optimal delivery depots and multi-depot visits en route
- Ability to optimise distribution and back-haul transport

The many features and modelling opportunities make it possible to create very realistic optimisations and routes where important aspects within retail transport are covered.

## Advanced Planning Algorithms

AMCS Retail Planner's powerful optimisation algorithms are perfectly suited for retail distribution and transport. The power of the optimisation engine enables planners to create realistic and economical routes for long-term, operational and real-time plans.

When optimising routes, the high-quality algorithms search for the most cost-effective solution while taking relevant service requirements and business rules into consideration.

The planner can easily access and change the most commonly used planning restrictions and optimisation criteria. Moreover, it is possible to customise the planning parameters in detail through comprehensive configuration facilities. These settings can be accessed by super-users, who can assist in fine-tuning the automatic optimisation functionality.

## Fully Integrated Planning

AMCS Retail planner is designed to cover the entire planning cycle from long-, medium- and short-term planning, through real-time execution, to the delivery of operational data for follow-up.

AMCS Retail Planner features strong planning facilities for the following:

- **What-if scenarios:** Simulating consequences of relocating depots, using different vehicle types, changing delivery policies, etc.
- **Master plans:** Making large-scale master plans based on forecasted data and visit frequencies and patterns, for distribution to the retail sector and to end customers.
- **Customer booking:** Maintaining master routes, with optimal insertion of new customers according to given visit patterns and frequencies.
- **Operational planning:** Performing batch or incremental route planning based on actual confirmed sales orders
- **Execution:** Real-time interaction with WMS as well as ERP and vehicle mobile systems for order updating, status message exchange, re-optimisation of route plans, and live data collection.
- **Follow-up:** The live data which is collected during execution is stored and used for reporting or exported for statistics and invoicing, for instance.

All planning levels are approached in an integrated way, and fixed long-term master routes are used as templates for daily operational routes. This creates an all-embracing planning environment tailored directly for the planning process within retail distribution and transport.

# Advanced Route Optimisation

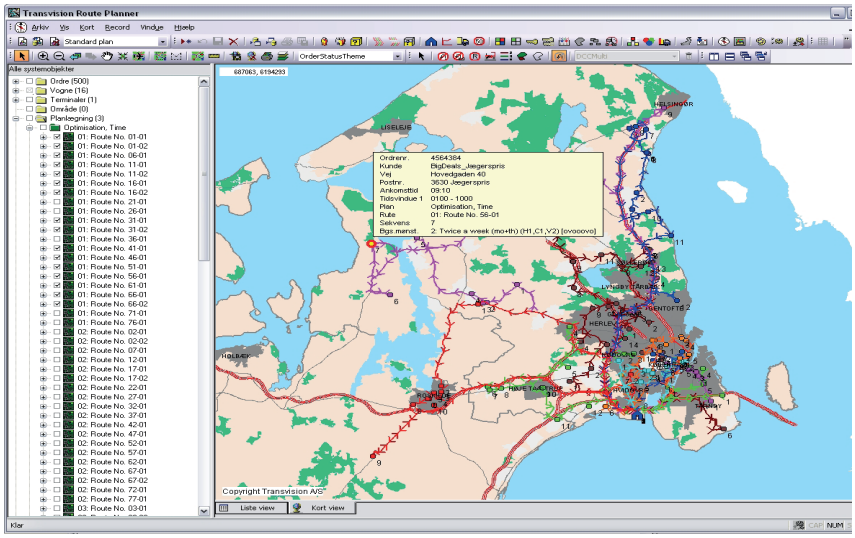
## What-If Simulations

AMCS Retail Planner is able to display numerous different plans in the same data set, which creates an ideal basis for building and comparing different what-if scenarios.

This makes it easy to test and evaluate the results of different planning scenarios reflecting different strategies, policies, and legislation.

Examples of different planning scenarios could be: Using different types and numbers of vehicles; planning with or without geographical restrictions or districts; using different distribution sites; merging distribution and back-haul transport; using different service levels and frequencies, etc.

Such simulations provide strong support for strategic decisions, as the system displays the consequences of each scenario with detailed KPIs regarding costs and customer service level.




## Master Route Planning

The system is highly suited for optimising master routes for fixed deliveries of goods to retail outlets or end customers.

AMCS Retail Planner offers many retail-specific features for master route planning. These include cyclical planning, multi-routes, choice of depots, and volume variations between weekdays.

Moreover, the system features high-quality optimisation of customer visit frequencies and patterns. For instance, it is ideal for determining how many and which service days should be moved in order to make a given plan more efficient and to spread fluctuating volumes over different weekdays.

With AMCS Retail Planner, it is possible to create a variety of different periodic or seasonal plans, allowing planners to pick the best master plans for operational use.

## Customer Booking

AMCS Retail Planner is an excellent tool for maintaining master routes when customers are added or removed.

New customers can be booked into the best possible positions in a master plan automatically, based on their service frequencies and allowed visit patterns. Alternatively, the system can automatically generate a list of prioritised time slots which the planner can choose from. This functionality can easily be linked to a website, where the optimal time slot can be found through a direct dialogue between the customer and the system.

An additional benefit is that a booking request can be sent to AMCS Retail Planner via the main back-office system when an order is received in a service centre. AMCS Retail Planner then replies directly to the main back-office system with a list of the best time-slotting suggestions. This is an efficient way of linking the order-receiving process with logistics.

# Optimising In Real Time

## Daily Planning and Scheduling

With AMCS Retail Planner, planners have an outstanding tool for adjusting and re-optimising the final distribution and transport plan before execution.

When actual sales orders are confirmed, they are merged with the master plan. The system instantly calculates the consequences of e.g. larger-than-expected orders and removed orders and displays all violations regarding resources and customer service levels. Based on this, the planner can either make manual plan changes or have the system perform re-optimisation. The planner can also, depending on the results, initiate a re-scheduling of driver and vehicle resources.

Moreover, the system can efficiently assist planners in incremental planning. If so, the plan is handled as a rolling plan into which ad hoc orders can be inserted the instant they are received. The planner can see all relevant data in Gantt charts, list displays and maps, from where automatic planning can easily be modified by manual drag-and-drop.

## Real-Time Plan Execution

AMCS Retail Planner contains strong real-time planning and monitoring features which go hand in hand with the exchange of data and status messages with WMS, ERP and vehicle mobile systems.

Ad hoc orders for additional deliveries, back-haul, trunking or inbound transport orders coming from the ERP system can be inserted into the next possible route in real time. It is even possible to reshuffle orders between the coming routes. At the same time, the updated plans are sent to the WMS, which can send progress information about finalised ranking back to AMCS Retail Planner throughout the day, so that new routes can be released for execution.

Route lists can be sent to the driver's vehicle mobile system, and status messages as well as GPS positions can be returned to AMCS Retail Planner. This makes it possible to monitor progress and warn customers about delays or even initiate re-planning, including reassigning routes to vehicles and rescheduling resources.

## Transport Follow-Up

Through its real-time connectivity to the vehicles, AMCS Retail Planner will collect all transport KPIs from the source, such as handling times, number of return loads picked up, waiting time, working hours, empty mileage, etc.

All this data is saved in AMCS Retail Planner for follow-up purposes, e.g. invoicing, payment of drivers and external contractors, performance evaluation, and analysis of customer profitability. This information is valuable as input to external systems and in connection with fine-tuning AMCS Retail Planner's planning model and system parameters.

The collected KPIs can be displayed in AMCS Retail Planner's standard reports or exported to external systems like data warehouses or ERP systems. Here, a standard reporting tool can be used for further data analysis.