



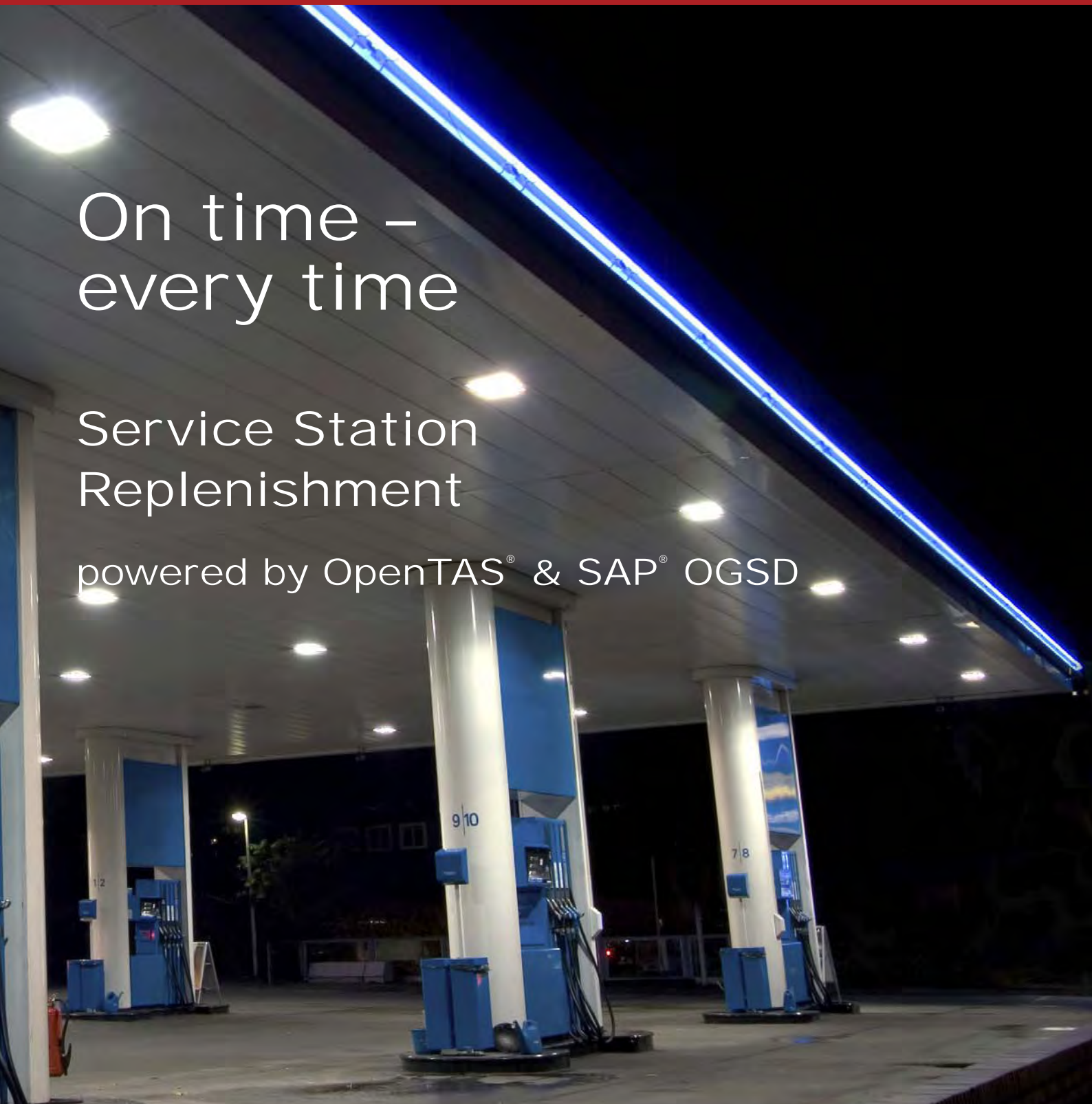
implico

Business Automation

On time –
every time

Service Station
Replenishment

powered by OpenTAS[®] & SAP[®] OGSD



Service Station Replenishment



Pain Points

- Operating costs are too high
- Too much manpower & time needed
- Distribution excellence not achieved
- IT landscape is too heterogeneous and should be simplified
- Communication & interface problems causing maintenance & performance problems
- Supply chain is not optimal
- Revenues are too low
- Insufficient security & no regulatory compliance

Solution Details

Transport Logistics, Dispatch Automation and Service Station Replenishment

- Automation of business processes
- Integration of refineries and depots through TAS
- Integration of service stations through POS
- Automated transportation planning
- Accelerated & optimized planning
- Integration of transportation companies through on-board computers in the trucks
- Tracking and tracing
- Dispatch automation

Key Benefits of OpenTAS®

- Optimization & automation of logistic and administrative business processes in order to reduce time, costs & manpower
- Providing clear visibility of the distribution processes
- Outstanding: transportation planning
- Development of an extremely narrow solution landscape, abolishing island solutions & minimizing interfaces
- Integrated supply chain management processes (distribution, terminal and transportation), a multi-location supply chain network, and multinational capabilities
- Ensured compliance to legislation and safety regulations; risk minimization

Target Audience

Lower and upper midmarket:

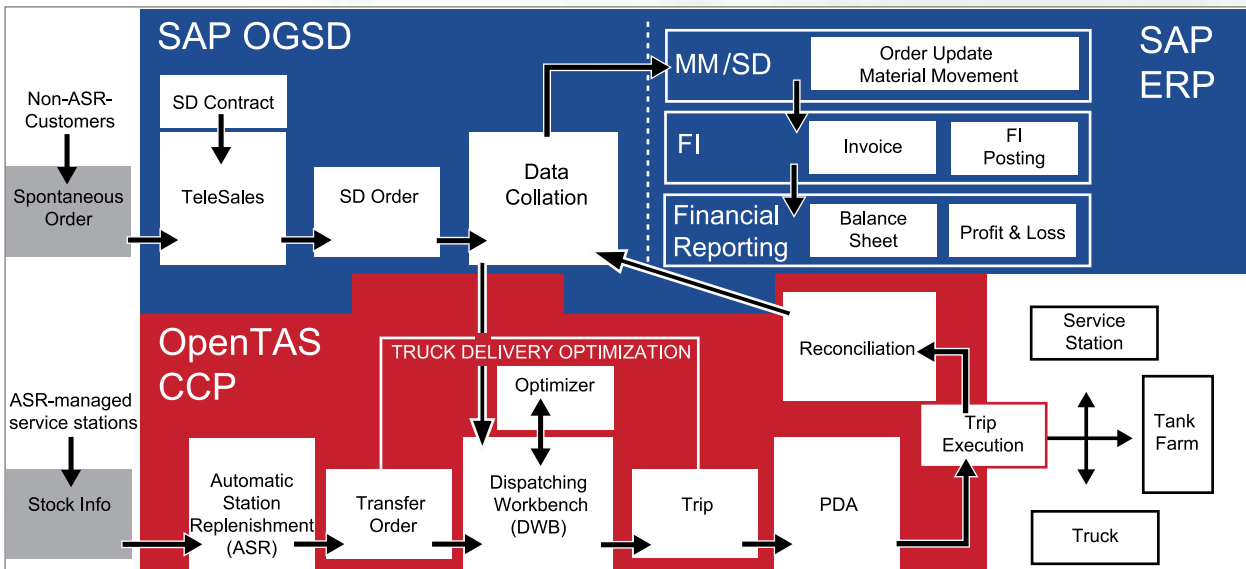
- Managing Directors

Large companies:

- CIO/Director of Development IT
- Logistics Manager
- Depot/Terminal Manager

Target Industries

- Oil & Gas Downstream Industry
- Companies that provide Service Station Replenishment (yearly turnover of more than US\$ 500 m.)



Timing is the Decisive Factor

The biggest challenge to deal with when supplying service stations with mineral oil products is timing. When the deliveries are made too early, then valuable logistic resources are squandered. But when the deliveries are made too late, the service station will have insufficient supplies and the respective filling pumps have to be closed.

On the market there are many subsystems promising to cover the individual aspects of service station supply. This leads to patchwork solutions which are very complex to implement. They have expensive maintenance and, above all, are inflexible. In particular the communication between SAP systems and the order automation ASR (Automated Service Station Replenishment) and the route planning TDO (Truck Dispatch Optimizer) is not resolved satisfactorily or is not resolved at all.

Integrated Solution

The solution to the problem is obvious: an integrated complete system that covers all the production steps of service station supply. Implico offers exactly such a system. Finally there is a system available that maps the overall process chain, from order acceptance, to route planning and supply to invoicing; highly automated, fast, secure, flexible and with low maintenance.

The core of the system is based on OpenTAS®, the real-time administration & dispatch system, and

SAP® OGSD (Oil and Gas Secondary Distribution). Implico has succeeded in combining the comprehensive functionalities of this powerful duo in an integrated complete solution.

The complete system consistently uses the known strengths of SAP OGSD in commercial administration, for example effective order acceptance and invoicing. OpenTAS as a special solution for oil logistic contributes to intelligent industry-specific procedures and functionalities. The result is a superior solution, that optimizes and automates the complete service station supply.

Fully Automated Processes

Thanks to OpenTAS ASR and the various integrated inventory processes, (e.g. fuel dipstick connection, POS connection, etc.) the different service station inventories can be monitored. At an optimal point in time the system generates an order that is available immediately in the OpenTAS Dispatching Workbench (DWB). As soon as the optimal route is calculated, specifying the minimum loading and unloading input and the exact delivery date, the driver can be on his way, staying in contact with the system the whole time through his PDA. In this way his route can be updated, which enables optimized planning. This leads to accurate and real-time invoicing.

Implico offers all the functionalities to cover the complete process of service station supply. This leads to higher performance and quality and minimizes logistic expenses.



Order Taking

Only when orders are placed properly, can products be delivered on time. This means the decisive factor for placing an order is the right point in time, and this is influenced by the stocks still available as well as the forecasted sales. As soon as a certain threshold level is reached, an order needs to be placed.

In a lot of companies order taking is done manually or is facilitated by working with individually developed or commercial -products. These approaches geared to a certain process step quickly meet their limits. The OpenTAS/SAP OGSD system overcomes these boundaries! Thanks to its integrated approach, it offers exactly the flexibility that is needed for effective order taking. Part of this is that the degree

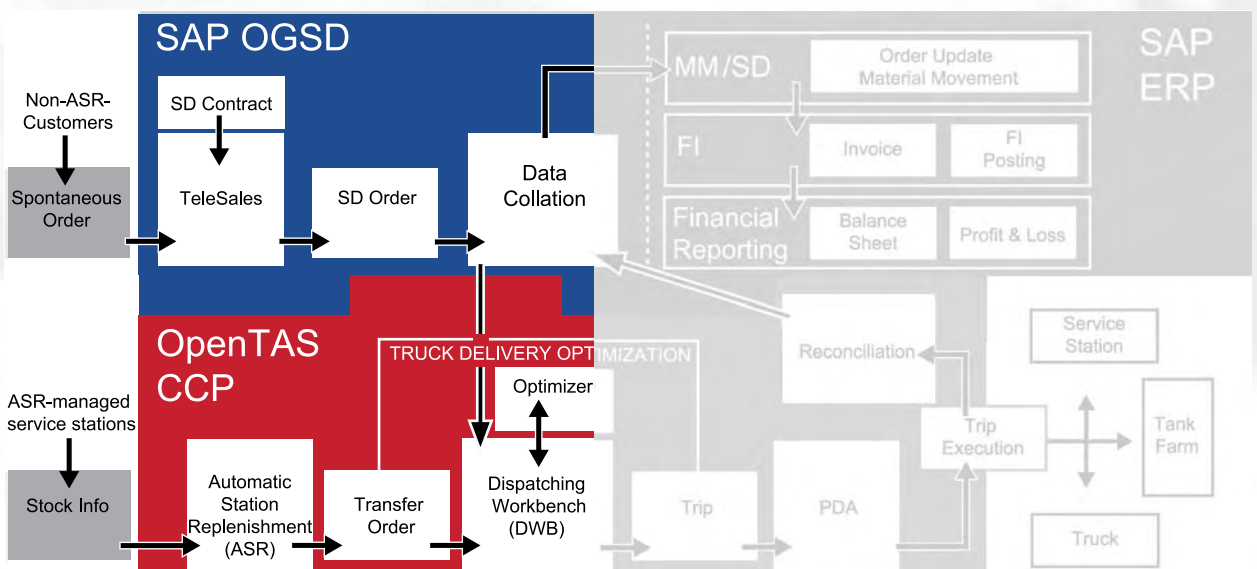
of automation can be defined, and that without any limitations.

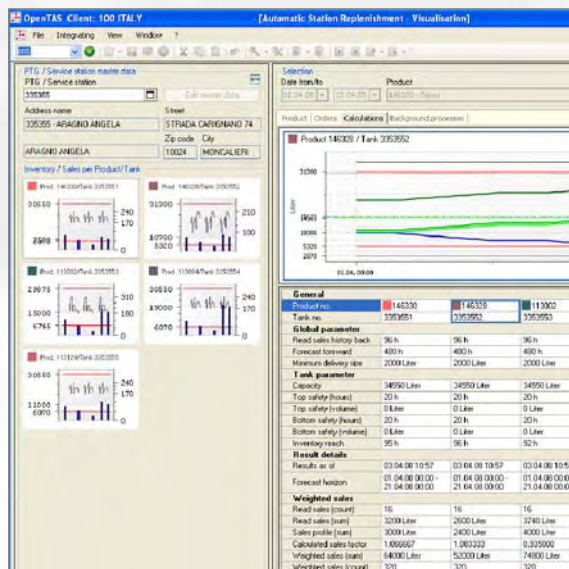
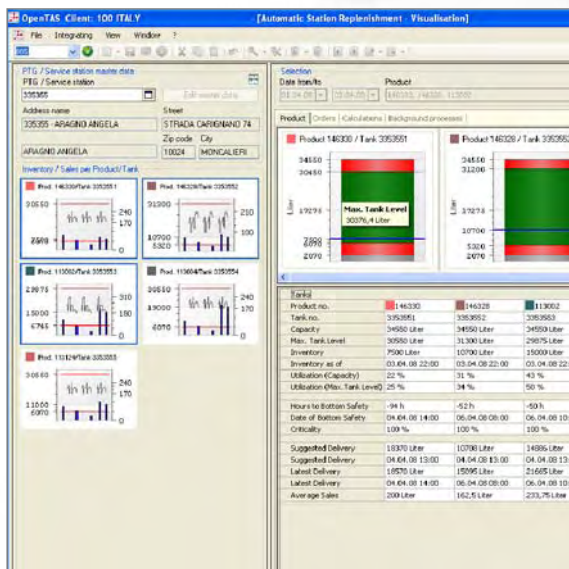
Manual Order Taking

Manual order taking is still very common. The service station tenant controls the stocks and orders by phone. The integrated SAP OGSD solution optimally supports telephone sales. Caller ID, the clear-cut masks and detailed information about the buyer ensures that the order is taken care of quickly, and service oriented. It also offers extensive possibilities in the lucrative domain of cross-, up- and down-selling.

Automated Order Taking Thanks To ASR

Implico plays its strengths in particular in the auto-





mation of processes. When it comes to order taking the integrated OpenTAS ASR functionality (Automated Service Station Replenishment) shines. The software independently monitors the available service station stocks. The intervals for these automatic inventories can be defined individually.

By means of the stocks the ASR module can calculate when, at a certain prior sale, the stocks will be depleted. Its high prognosis security is achieved by referencing a multitude of historical data. Included here for example are actual previous sales. The period of time that should be taken into consideration can be configured. The operating experience is already in the system. The intelligence can also be seen in the details. OpenTAS ASR doesn't calculate obstinately straight forward, it also takes into consideration the fluctuation between day and night as well as special events like public holidays, school holidays, etc. Thanks to all this information the system can calculate the optimal and most efficient point in time for a new order.

Current Progress Reports

Thanks to the information supplied by the Implico solution the customer is always up to date about the on-site situation. If needed, the system can generate an updated stock report. It is possible to define the type and depth of the information required. It could be the fuel products stocks, but it could for example also be the prior sale in the shops through the integration of the cash-register systems. Everything is possible.

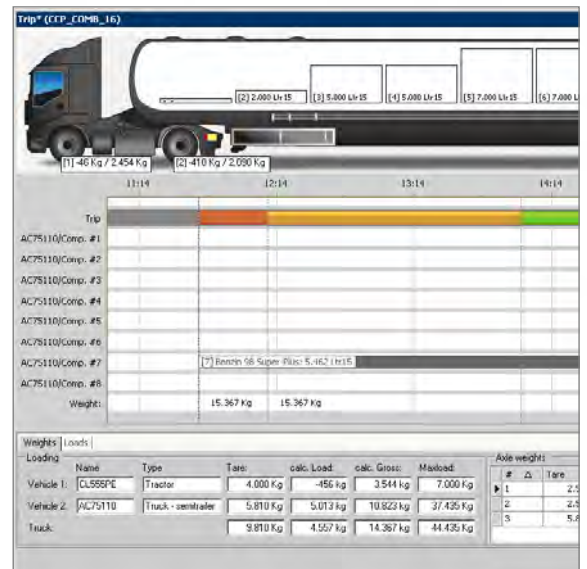
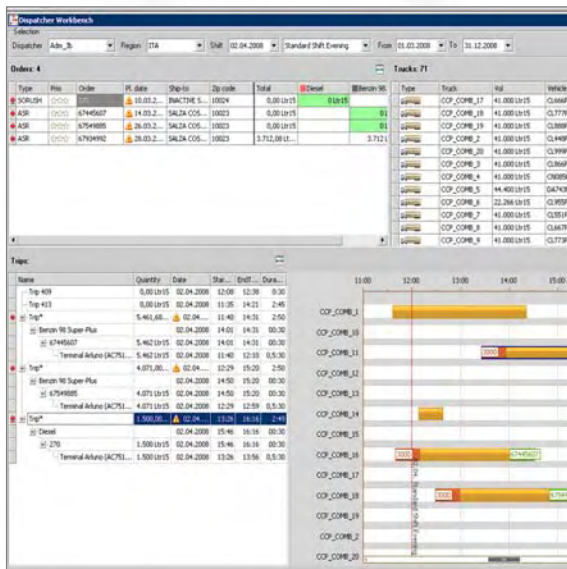
OpenTAS ASR: Technical Details

The OpenTAS ASR calculation is governed by various customization parameters and master data. Numerous master data categories are relevant for the OpenTAS functionality: Stations (e.g. opening times per day of the week, target drop rate), products (e.g. safety factor in hours opening time and in liters), tanks per product (e.g. several tanks per product, joined or separated, tank size, non pumpable quantity) and history (e.g. actual stock, calculated trend based on historical data).

ASR is a permanent process (system service) which runs 'in real-time' when new stock information comes in. ASR is not a batch process which will cause heavy server load each time it is invoked. The result of each ASR run is a new replenishment point for a specific product of a station. The earliest product replenishment point will become the station replenishment point.

The product quantities are calculated by the OpenTAS TDO module also taking into consideration the truck compartment sizes. Another highlight: OpenTAS ASR uses the real opening hours of the stations for its calculations. This will produce more accurate results than a standard 24 hour day.

With the trends, the other master data and its parameters OpenTAS will calculate the base average sales per hour which will be used for the forecast.



Route Planning – The Optimum is the Goal

Whether manually entered into SAP OGSD or automatically conveyed from the OpenTAS ASR module, the new order is now available with an exact delivery date. The challenge now is to carry the order out as efficiently as possible. The TDO functionality (Truck Dispatch Optimizer) offers the optimal system support; it ensures that the personnel and the vehicles are employed in the best possible manner.

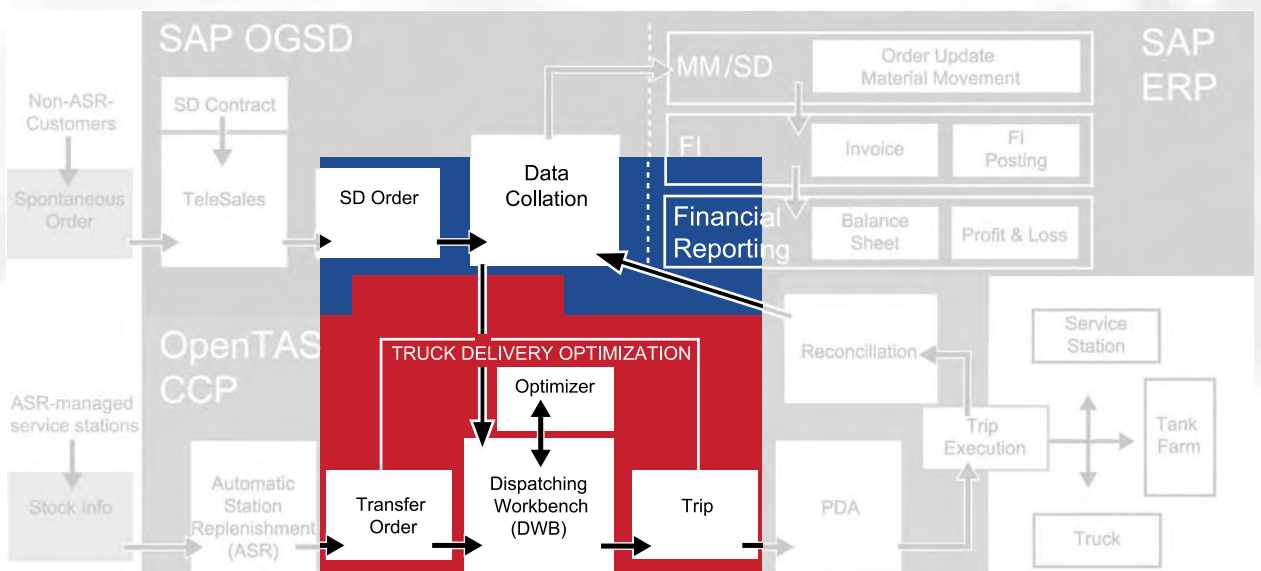
The Goal: Minimized Drop-Rate

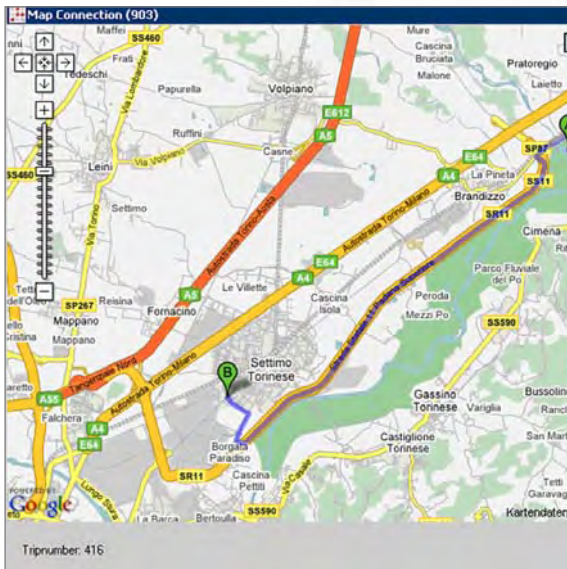
The optimal scenario: the truck is completely loaded once and completely unloaded at the service station. It saves unnecessary driving and it means that the personnel and vehicles are employed optimally. In

this ideal case the drop-rate is 1,0. A positive side effect: in this scenario for complete unloading, simple and thus cheap trucks that don't need to be equipped with complex measuring instruments suffice. In reality the ideal rate of 1,0 is not always reachable. The OpenTAS/SAP OGSD system allows customers to come as close as possible to this rate. Calculations show that companies using OpenTAS managed to decrease their drop-rates reaching values that competitors can only dream of.

Route Plans – The More Updated the Better

Route plans need to be compiled intelligently and need to be as updated as possible. They are the key to success in logistical as well as commercial aspects. Here money is really lying around in the streets.





Thanks to the TDO module a route plan can be compiled that optimally uses the customer's resources.

Timing is also the deciding factor for route planning. If the planning takes place too early, then current orders cannot be processed anymore or only under high operating expenses. Therefore the deciding factor is to plan as currently as possible but at the same time keeping the planning security in mind. The TDO module always keeps the overview. By means of existing orders it firstly takes over a rough planning that is updated automatically. At the decisive point in time a final shift schedule is available, that also puts the latest developments into practice.

OpenTAS TDO: Technical Details

The ASR process generates Transfer Orders for the stations with a priority list. The OpenTAS TDO module uses this list to calculate the optimal delivery sequence for the stations. The solution is different to other products on the market, but will produce more accurate results in truck optimization, also taking compartment sizes of the trucks in consideration.

Depot & Carrier Assignment Optimizer:

This step is executed normally only once during entry of new master data of stations or customers or carriers. Distances, driving time and cost for the next x depots is calculated.

Neighborhood Optimizer:

Calculates process distances, driving times and cost to all customers/stations in the 'neighborhood' which

has the same depots assigned up to a limit of distance, driving time and cost.

TDO Process

Truck Assignment Optimizer:

Customer orders normally have various products and quantities. If OpenTAS has a delivery history of that customer, the rate between ordered quantity and delivered quantity of the past deliveries could be used to optimize the current ordered quantity. At this point of time TDO knows the replenishment points, free capacities etc. TDO now assigns the trucks and the station order quantities depending on station needs (ASR history) and the truck compartment sizes etc. Many parameters determine the way TDO is working. Target drop rate, target station product reach, trip length, shift times, planning horizons, truck use safety factors, target payload rates etc. Also depots are now selected and assigned to the trip depending on product cost and availability.

Depot Assignment Optimizer:

Distance, driving time and driving cost are taken into consideration.

Driver Assignment:

Depending on trip times, shift times, working time regulations and other restrictions TDO assigns drivers to the trucks with planned trips.

Carrier Interface

Via different interfaces the planned trips can be sent to the respective carriers. Trip maps could be visualized by an external mapping tool.

Mobile Board Computer / PDA



Constant Contact with the Driver

The route planning generated by the OpenTAS module TDO is transmitted electronically to the driver's PDA. In this way the driver has an overview of upcoming tasks.

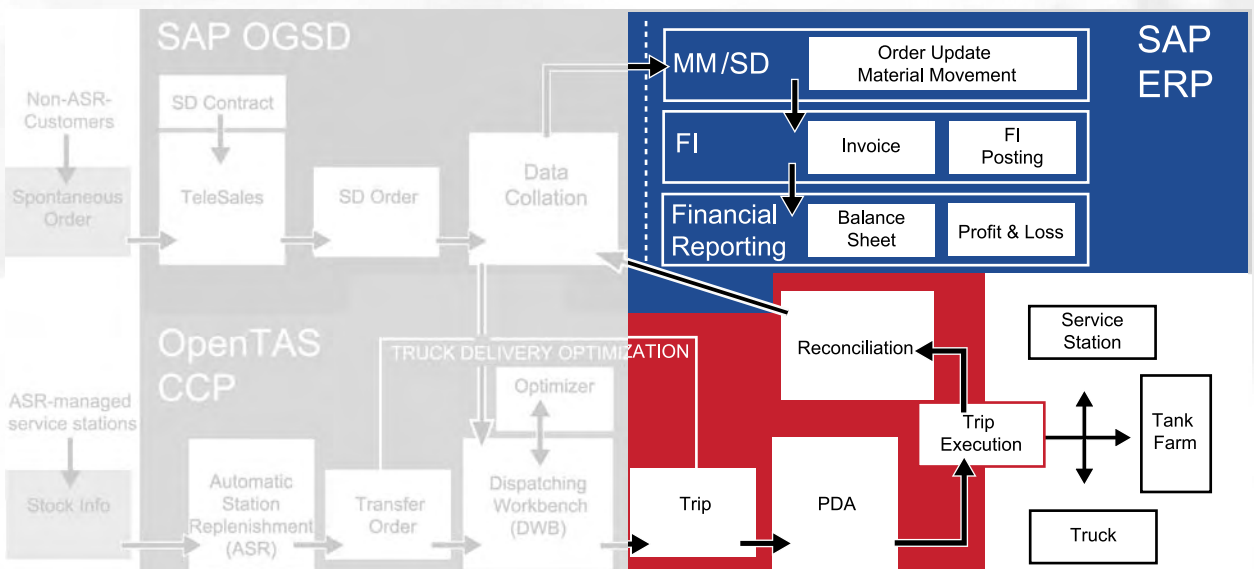
Thanks to the PDA communication the control center knows when the driver starts and when he reaches which depot or service station; he can also inform them when he has finished loading/unloading.

Connection

OpenTAS PDAs in the trucks are connected to the central OpenTAS system via GPRS. Communication format is mainly XML.

Communication between OpenTAS DWB and OpenTAS PDA:

- Data sent to truck computer
- Trips
- Checklists
- Authorised GPS coordinates
- Driver messages
- Data sent from truck computer
- Finished trips and orders
- Completed checklists
- Sensor data (OTC necessary)
- Error protocols (e.g. unauthorised GPS delivery coordinates)
- Drivers working time information, breaks, etc.
- Permanent GPS position messages





Delivery

Also during the execution of the order the system offers the customer maximum transparency. The control center is always informed about what is happening in- and outside the facilities and can react quickly.

Route Planning Actualization

The processing of real data shows the superior functionality. The current data delivered by the driver is used by TDO to control the compliance with the route plan. If starting or unloading takes longer than planned, the plan is changed immediately. Like this the disposition is always informed in a timely manner, when for example an additional vehicle is needed.

Reconciliation

The reconciliation process is one of the highlights of OpenTAS. During reconciliation OpenTAS checks, sorts and enriches the data before connecting it to the SAP business workflow. Reconciliation data comes back to OpenTAS in three ways: manual input in OpenTAS, closed trips from truck computers and via OpenTAS WEB-Interface. Reconciliation data can be customized. In case no truck computers are in use, all trip data (distances, times, quantities, etc.) could be entered manually or through the WEB-Interface.

Reporting

Standard reports are provided via the OpenTAS report engine; additional customer specific reports can

be created. The results are provided in real-time & in various formats.

Here is an overview of available standard reports:

Trucks: e.g. efficiency (distance, hours, quantities, payload rates – all trip, drop, shift), truck control (gains and losses per truck, tour, driver, drop), cost evaluation (cost vs. freight rates). Average values for drops/tour, qty/drop, hrs/drop, distance driven/drop, cost per drop are of special interest in this section for rating the logistics efficiency.

Stations/Stock: e.g. gains and losses per station, per product, per pump manufacturer, cumulative and average sales, gains and losses, tank temperatures, cumulative and average deliveries, sales forecast per station, local area, country, region with associated depot quantities.

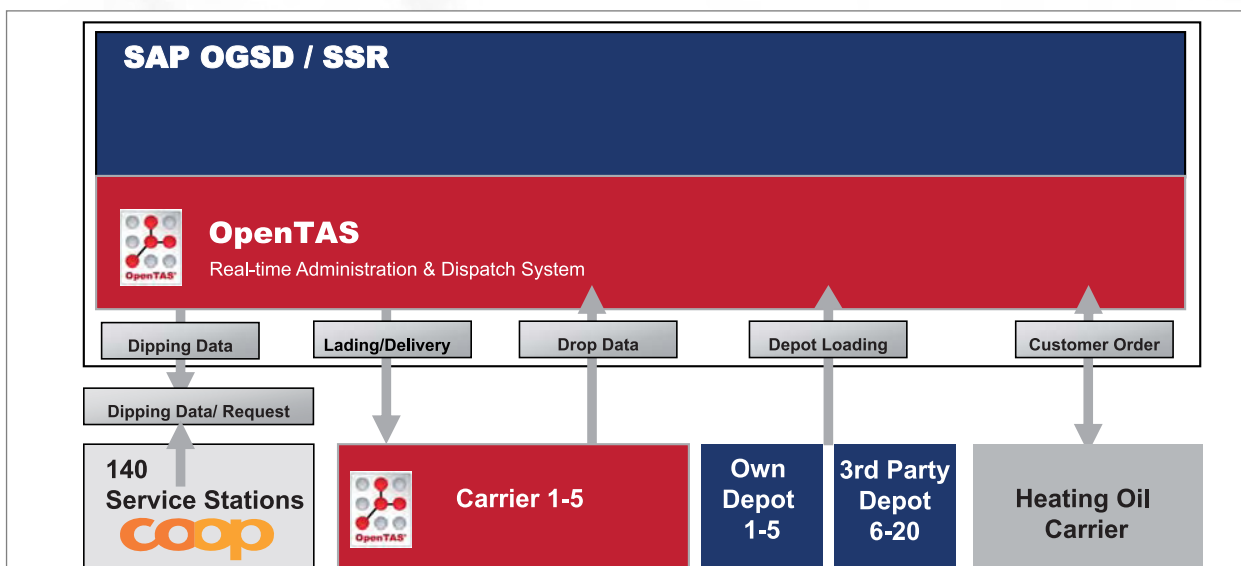
Depots: e.g. quantity comparisons (with temperatures and densities), depot quantities vs. delivered quantities, differences cumulated by depot with depot ranking.

Drivers: e.g. similar to trucks, used for driver evaluation and control.

Carriers: e.g. carrier comparison with remaining quantities, payload rate, drop rate, filling rate.

Immediate Invoicing

The PDA integration not only leads to more transparency and quality in the operative logistics area, but it also enhances invoicing. The order can be invoiced directly after the unloading and the actual services rendered is fixed.



Reference Project in Switzerland

Implico was hired to replace an old accounting and logistics system for an oil corporation in Switzerland, including the introduction of a SAP system. The complete accounting and quantity balance for approx. 140 service stations had to be mapped within SAP. The contractually involved carriers were each assigned a number of service stations and depots, where they had to optimize the loading and supply of service station products self dependently. Concerning electronic dipsticks, the service stations were automated step-by-step, and then sent measuring and counter data to the central installation. The system went live in 2006.

Integration: Service Stations, Dipping Data, Sales

The service stations have a local BICA Point-of-Sale system at their disposal. The different POS units (point of sale) communicate via a central HOS server, which then exchanges data with OpenTAS. The service stations post the petrol pumps' meter readings in short intervals (hourly). This data is registered by OpenTAS. Simultaneously, the counter data is aggregated in OpenTAS and transferred as IDOC to SAP® SSR. In addition, the measurement data registered by the service stations concerning price alterations, day-end closing, or start and end of delivery, are processed in OpenTAS and transferred to SAP as IDOC.

Integration: Depots, Pick Ups

The carriers' loading receipts are transferred automatically to OpenTAS. The read data is then con-

verted, validated, and assigned. After that, it is available in the stock journal in OpenTAS. The reporting of "moving goods," that is quantities that have not arrived at the service station yet, but have already been loaded by the carrier, is possible at all times.

Integration: Carriers

The carriers' vehicle data have been added to OpenTAS, including the master data attributes. The service station products are clearly assigned to the respective carrier. The constantly updated stock data is used to determine which service station has to be supplied with which quantities and when. The routes are optimized and scheduled accordingly by the system.

In the case of fast, real-time data transfer of loading data ex depot to OpenTAS, the information can already be transmitted to the carrier. In the other case, the loading quantity is registered and assigned to the unloading quantities at the respective service stations. Corresponding transport deviations are calculated, or the carrier indicates the remaining quantity that needs to be accounted for as previous loading quantity during the next route. These data are transferred into the central system and balanced with the depot's data. After applying a number of matching criteria, loading and unloading receipts are grouped and connected to the SAP business workflow.

A web-based route control allows for identification of missing allocations, or records, or errors in registration, and makes manual correction in OpenTAS possible, long before the start of the SAP workflow.



OpenTAS – the Proven Basis

OpenTAS is the integral administration and dispatch system for the oil, gas and chemicals industry. OpenTAS optimizes and automizes the logistic and administrative processes within the oil & gas downstream industry (tank farms, refineries), especially in terms of terminal management, transportation, distribution and service station replenishment.

OpenTAS ensures rapid, transparent, secure and above all cost-beneficial processes. The IT landscape is simplified, IT and maintenance costs are reduced. OpenTAS can be seamlessly integrated into SAP but is also a stand-alone solution.

OpenTAS is a Microsoft .Net based Windows Application Suite and uses therewith the latest development platform. This enables a particularly high-quality optimization and an extremely quick implementation.

SAP Oil and Gas Secondary Distribution

SAP OGSD was developed by Implico and is marketed by SAP worldwide. It enables companies to integrate their downstream business from sales, customer service, and supply chain to finance and reporting.

SAP OGSD is part of the SAP for Oil & Gas Solution Portfolio. The add-on to SAP ERP offers a whole set of new oil industry specific applications, focusing on sales and distribution. One of the numerous highlights is the telesales functionality.

Implico – Company Profile

As an international consulting and software company, Implico has been helping customers from different industries with the optimization of their business processes for more than 40 years.

Projects are being implemented with comprehensive industry know-how as well as in budget and on time.

Implico offers professional, integrated consultancy and implementation services from one source.

Business Automation



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