ORTEC LEO

The ideal solution for Load and Planning optimization in SAP ERP

ORTEC and SAPSTROOM have decided to bundle their strengths and experience in order to inform companies with a mayor logistics department in Belgium about the "LEO transportation solution" in SAP ERP.

ORTEC is one of the largest providers of advanced planning and optimization software solutions.

SAPSTROOM is a SAP services partner who is specialized in integration and implementation of logistic processes in SAP ERP and SAP SCM, with a clear focus on warehouse and transport management.

This paper **emphasizes the advantages** of using the SAP-embedded Advanced LEO Planning Solutions for load building and routing, named **ORTEC LEO** which finally results in reducing transportation and warehouse management costs and decreasing your CO2 footprint.

ORTEC LEO (Logistics Execution Optimizer) is a **solution** directly integrated in SAP ERP, **optimizing the complete process for the distribution of goods** from carton, pallet and load space optimization, order picking planning and controlling, paperless picking through to route planning.

Take orders....plan trip...plan load and picking.....pick....load ...... and deliver!

SAP + Route Optimized by ORTEC Software + Load Optimized by ORTEC Software + Picking Optimized by ORTEC Software = Delivery Success!

1. <u>**LEO on top of SAP ERP**</u>

When implementing and using the ERP transportation solution, you can reach the limits of the available standard SAP functionality. ORTEC and SAPSTROOM can support you with different alternative solutions:
- ORTEC LEO
- Transportation Planning/Vehicle Scheduling (TP/VS) in SAP SCM
- SAP Transporation Management (TM)

Each of these solutions has its strengths and weaknesses, and the best choice will highly depend on your business needs.

We may consider LEO, which is an extension of SAP ERP, as the ideal solution for industrial companies with complex truck loads (products of different shapes and sizes and/or deliveries to a lot of different ship-to addresses).

ORTEC offers you a perfect solution, consisting out of the following key elements:
- Comprehensive optimization logic
- Real distance and time calculation
- Guided packing and loading
- Integral follow-up of the transportation process

2. <u>**Benefits of LEO**</u>

In general, you will benefit in various ways from LEO's optimizations:
- Avoid time loss while loading the truck (trying to fit in all products, putting away products that didn't fit…)
- Avoid leaving trucks that are not optimally loaded
- Avoid longer travel distances than necessary
- Better follow-up of cost causing processes

These lead to a reduction of your loading and transportation costs – and a reduction of your CO_2 footprint.

3. Basics of LEO

LEO consists out of **several modules**, which are integrated into SAP ERP:
- Carton optimization
- Pallet Optimization
- Vehicle space optimization
- Route determination

A very **strong aspect of LEO** is that it's fully embedded in SAP ERP.

Using a dedicated name space, this optimization solution **overcomes the complexity** of other solutions. Unlike other providers, LEO does not have any issues due to data duplication to other systems or collisions with standard SAP while upgrading.

Additionally LEO not only supports you with advanced planning of cost efficient shipping of your goods, but also displays a **graphical 3D view** of the loads that are assigned to be shipped.
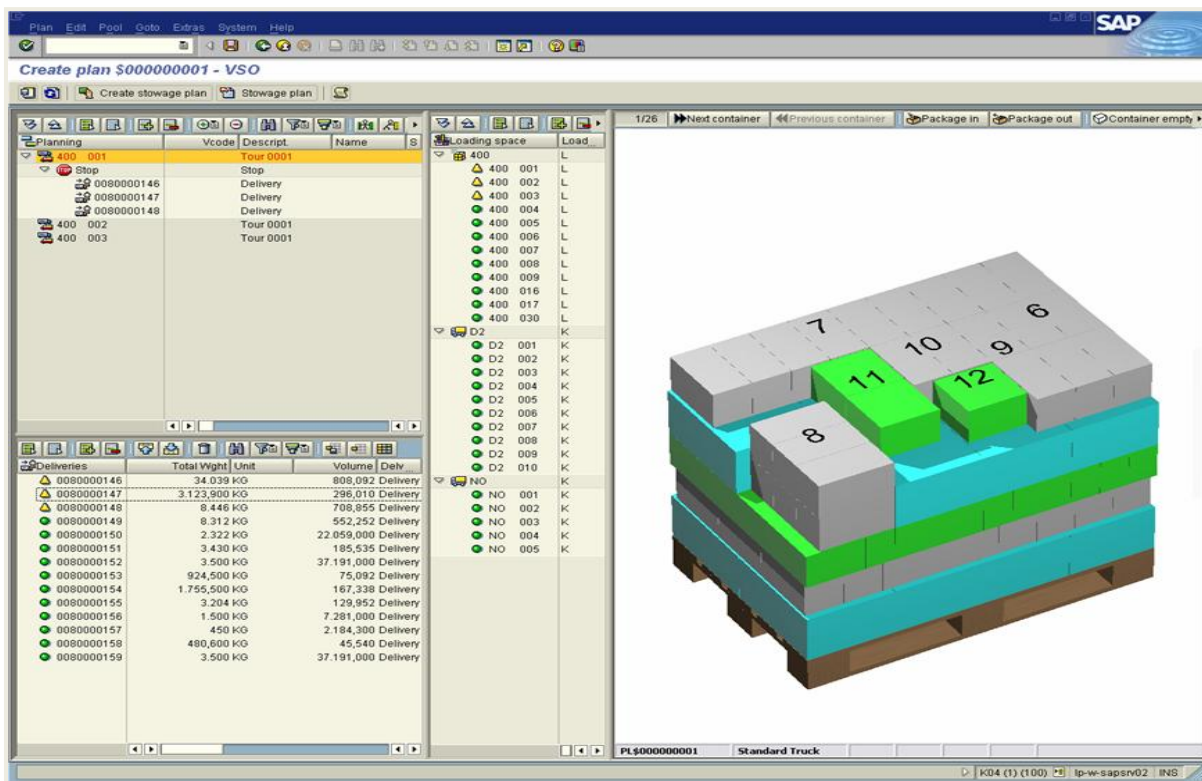

Including "ORTEC Mobile Logitics solution", it provides also a **powerful set of RF transactions** and support for voice picking .

As the different modules can be implemented separately, your company can focus on the improvement of the weakest link in the logistics execution chain.

4. LEO in your business process

The following flow shows the most typical approach using LEO.
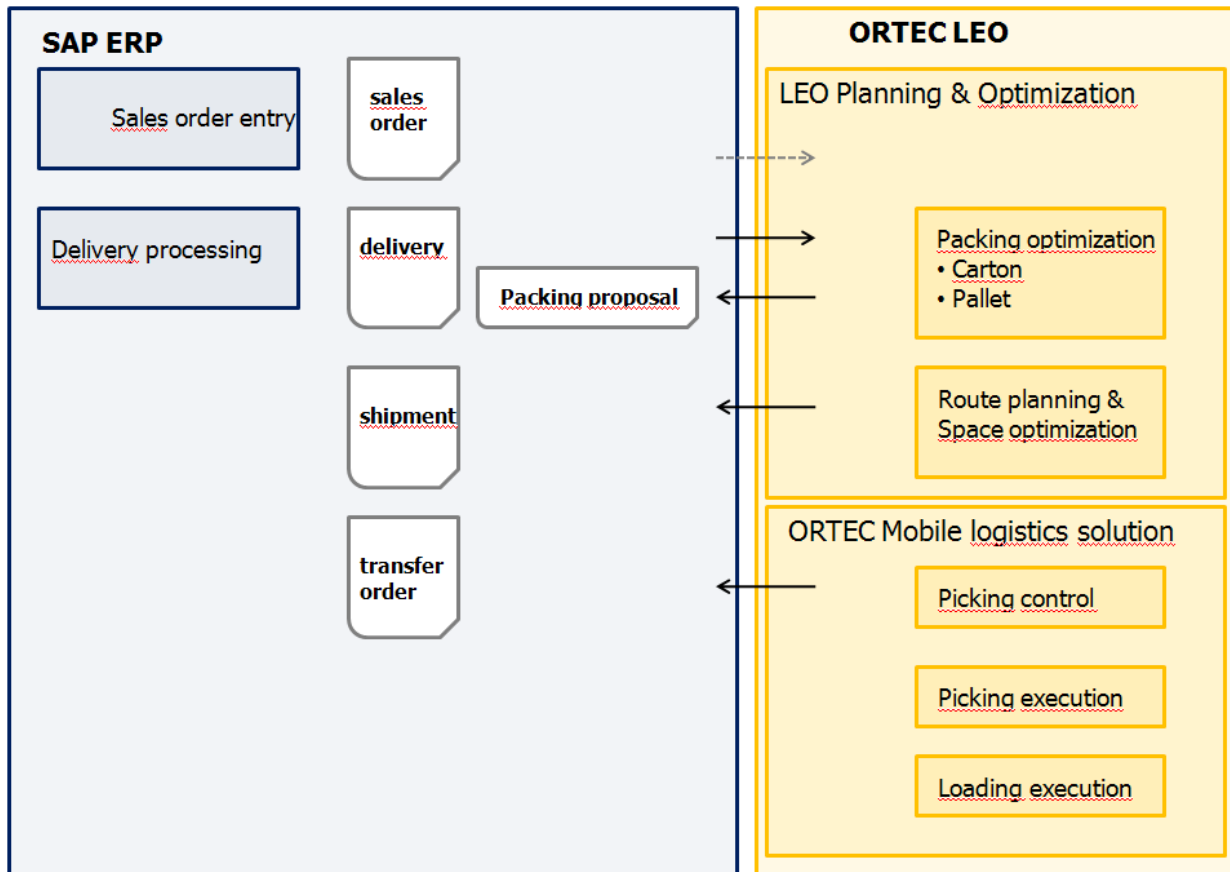
A. Sales order entry

In general, the process starts from classic SAP ERP with sales order creation. Typically, no interference is provided here towards LEO.

However, you may use LEO to optimize the ordering process, by showing what the order would look like in a truck. This would make sense in processes where your customer places an order which can be delivered in one or multiple full truckloads.

B. Delivery

In most cases, the delivery will be used as starting point for transportation planning. They then occur in LEO as entries in the "due list".

C. LEO Planning and Optimization

Packing optimization

Packing optimization can be done at 2 different levels:
- Carton optimization
- Pallet Optimization

The pallet optimization takes the carton optimization into account (if implemented).

LEO's packing optimization comes with real optimization logic, taking into account different constraints such as material dimensions and stack ability, hazardous material requirements, specific customer requirements, …

Typically, the LEO packing optimization is executed before the picking (but it can also be done after the picking), enabling you to take the packing into account while executing the picking if required. Both steps can be executed automatically in the background, or interactively on graphical 3D screens giving you a clear view on how the packing will be done, with the ability for the user to easily change the proposal in an effort to further improve.

ORTEC's packing optimization leads to a packing proposal in ERP, resulting in the benefit that standard SAP applications as well as "ORTEC Mobile Logistics Solution" can use it while executing the logical processes (picking, packing and loading).

Packing optimization with real iterative logic is not available in standard SAP.

The advantages of implementing LEO's packing optimization are:
- **Less and smaller packages**, reducing the further handling costs and the transportation costs
- **Gain working time**, warehouse employees are instructed how the ideal packing is done instead of having them to find out the best way of stacking the goods, and/or by sending them into the warehouse to pick with the right cartons. No time is lost by giving instructions by managers or solve the puzzle by themselves.
- **Reduce damage** by ensuring the right products are stacked at the bottom

Route planning and Load space optimization

Route planning and loading optimization are, depending on the complexity of your business processes, often very difficult exercises. A manual "best guess" may often be far from optimal, and/or take a lot of time and knowledge (by the person doing it).

LEO can drastically improve and streamline this process.

Route optimization

LEO takes all the deliveries (or eventually sales orders) within a time span into account and calculates automatically the "cheapest" combination of inbound and outbound deliveries in order to meet a lot of constraints and service levels:

- Customer requirements (delivery windows, priorities)
- Vehicle restrictions
- Driver restrictions
- Real road maps, even taking road works into account

The "optimization run" results in a cost reduction and KPI optimal solution, which the user notices and modifies on a graphical screen (the user can also start from scratch). Any change reflects immediately in the overall cost and KPI's, and this impact is made visible to the user.

The benefits of using LEO's route optimization:

- **Reduction** of pure transportation **costs** (result from costs in hours, costs in distance, and penalty costs caused by not meeting certain constraints). Driving less distance will ultimately reduce your CO_2 footprint
- **Increase of service levels** towards the customers – taking their constraints (like opening hours) into account
- Getting in **control** of **legal risks** (planning takes legal constraints into account like dangerous goods, driver hours, capacities,…)
- **Minimum** of detailed **master data** needed (compared to alternate solutions)
- **Increase of flexibility** and visibility towards late orders coming JIT
- Option to **really plan maintenance** on the individual vehicles
- Possibility to use the knowledge of which truck must be loaded when to **start picking at the right moment**, reducing waiting times for trucks and/or waiting time for goods on the loading area

Load space optimization

Loading a truck may not be an obvious exercise. Different constraints need to be taken into account:

- Maximum capacity of the vehicles
- How can the products be stacked (something heavy on something light?)
- What is the offloading sequence (goods for the customer where the truck goes last, should be loaded first)
- Goods which must have a certain orientation
- Dangerous goods regulations
- Axle weight optimization

Like for the packing optimization, the results can be shown on 3D screens, giving a clear overview of the results.
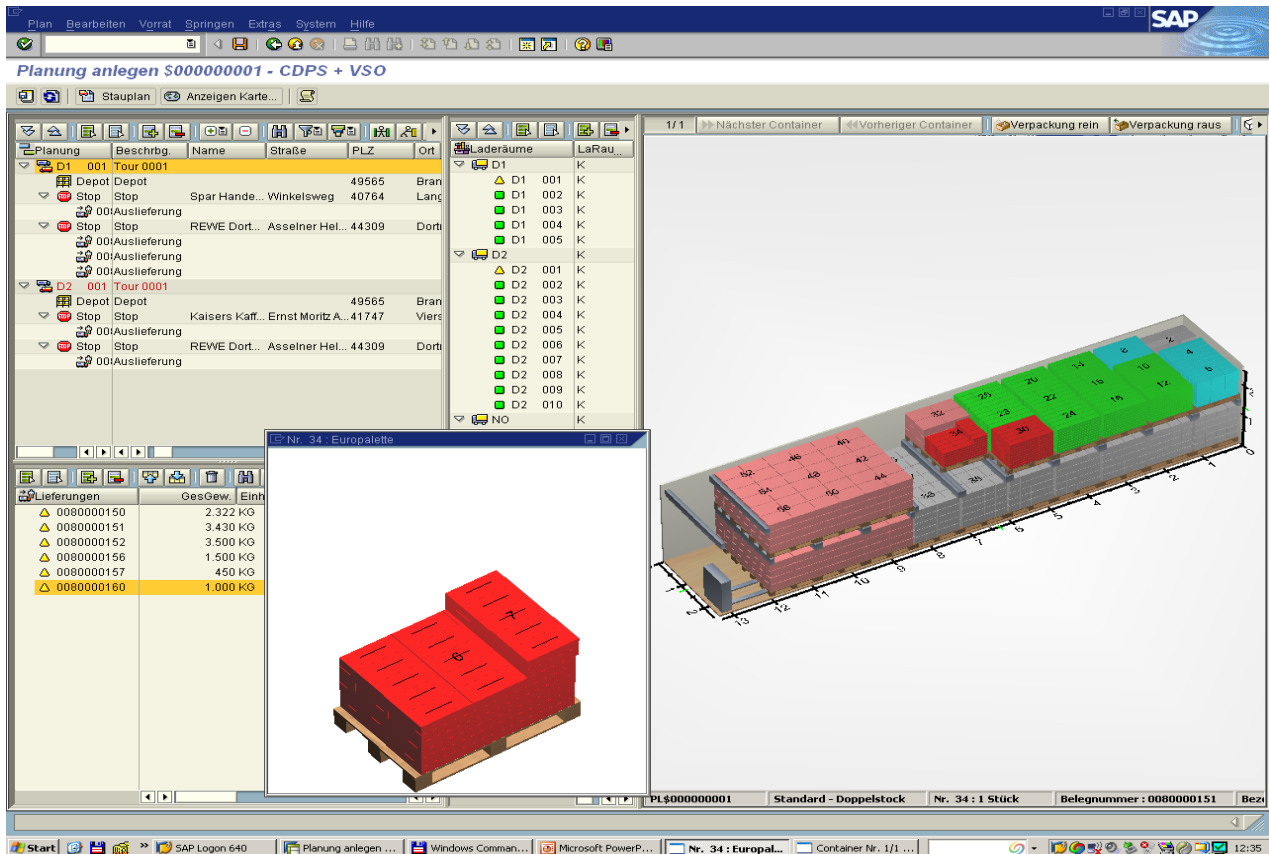
D. ORTEC Mobile Logistics Solution

Inside the warehouse

You can consider the ORTEC Mobile Logistics Solution (MLS) as a layer above SAP WM, which you can use to more tightly integrate the plans you made in LEO (for packing and loading) with the execution on the floor. MLS can bring the actual instructions right on the RF scanners or steer the voice picking. In addition, you can use it to actually plan the employees via pick routes through the warehouse layout.

In the area of picking execution, the MLS can help you to:
- Create waves and transfer orders
- Execute the picking and carton packing
- Execute the pallet assembly
- Prepare the loading area (assemble the goods which should leave together)
- Predict the workload

After the picking, MLS can also help the worker loading the truck.

As a result, you can expect:
- **Increase of efficiency** in picking, packing and loading process
- **Decrease of error** ratio's

On the road

Also during the transportation execution, LEO MLS can be useful. If you include mobile GPS tracking equipment in your vehicles, you can exactly track where they are, and where time is lost. But even without this investment, you can use LEO to enter relevant information like real waiting times.

You can benefit from:
- **Capturing exceptions** (unexpected waiting times, traffic jams, …) allowing the shipping department to be warned so they can inform the customers (increasing the service level) and learn from them in order to improve future deliveries.
- Being able to push through **changes even while the truck is on the road** (additional pick-ups)
- Getting back information for **accurate cost calculation** (which customers cause long waiting times)

5. <u>Customers who use ORTEC solutions</u>

You can find ORTEC customers in very different sectors. We name:
- Apollinaris
- Römerquelle
- Ferrero
- Konica Minolta
- Schneider Electric
- …

Conclusion

Implementing LEO saves your company a lot of money, increases the service levels requested to your customers, and reduces your ecological footprint. It leads to a real improvement of your transportation processes, already starting from within the warehouse processes (picking and packing).

Using LEO improves the ordering process, resulting in orders that match efficient truck loads.

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