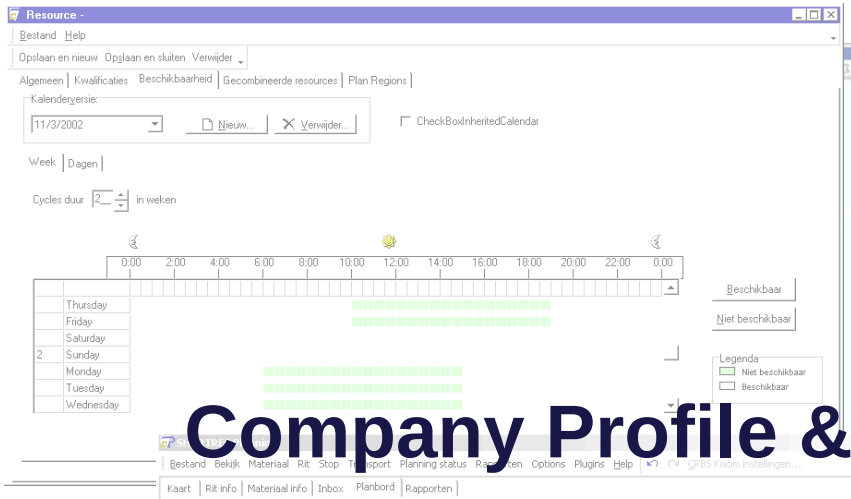
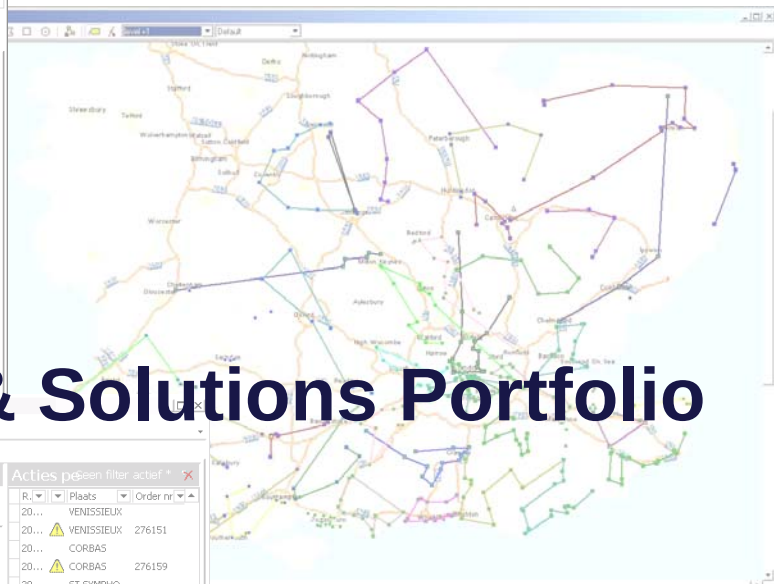
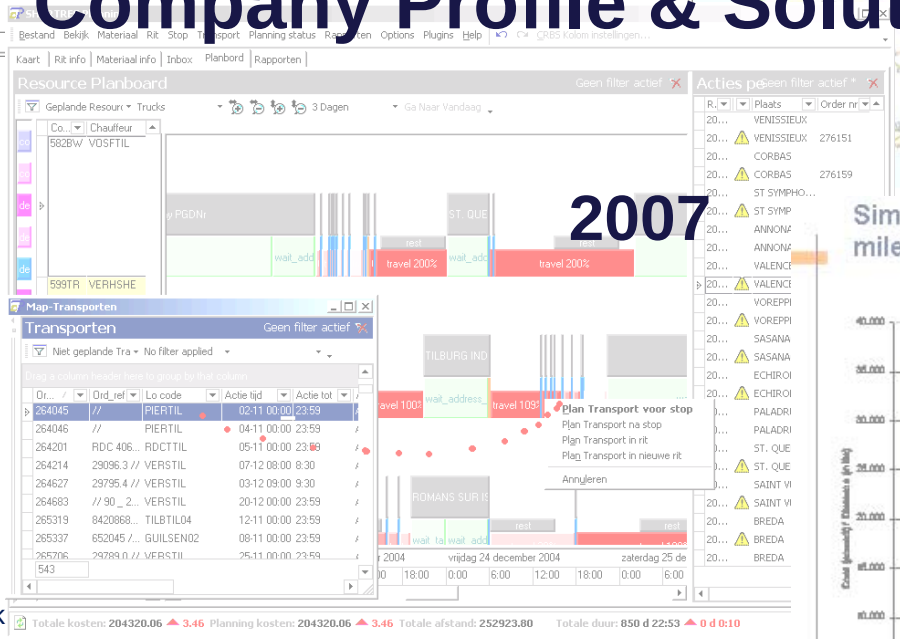
Company Profile & Solutions Portfolio

2007







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ORTEC
Transport & Distribution

November 2007 - Moscow

ORTEC International **http://www.ortec.com**

Georgios Sarigiannidis & Daan Boon

Company profile

ORTEC company profile

- Independent Dutch company founded in 1981
- Offices: Netherlands (HQ)
  Germany
  France
  Belgium
  USA
  UK

- Partners: Mantis/SAP/Business integrators etc
- Customers: International and domestic private companies
  Governments
  Business to business
- Number of employees: ~ 600
  skilled in econometrics, mathematics, IT and business specialists
- Revenues 2006: Euro ~ 40 million

Company profile

Core competence ORTEC: Planning and Optimization

Business

Understanding the customer

Operations Research

Powerful, intelligent decision support and process optimization

IT

Professional and easy to use systems for strategic, tactical and operational processes

Company profile

Logistics

Transportation and Distribution

- Coca Cola, BP, Mobil, Q8, DHL, TNT, Yellow Freight, Interbrew, Philips

Human Resource Management

- VUmc, Exxon, Maersk, Nedlloyd, TNT, Securicor

Production Planning

- Shell, ABNA, Corus, Boliden, Naval Dockyard

Packing and Loading

- BASF, Colgate, Henkel, Kuhne & Nagel, Mercedes, Siemens, VW

Aviation, Public Transport

- KLM, SN Brussels Airlines, Amsterdam Airport Schiphol, Airbus, VLM airlines, Aero Groundservices, Dutch Railways

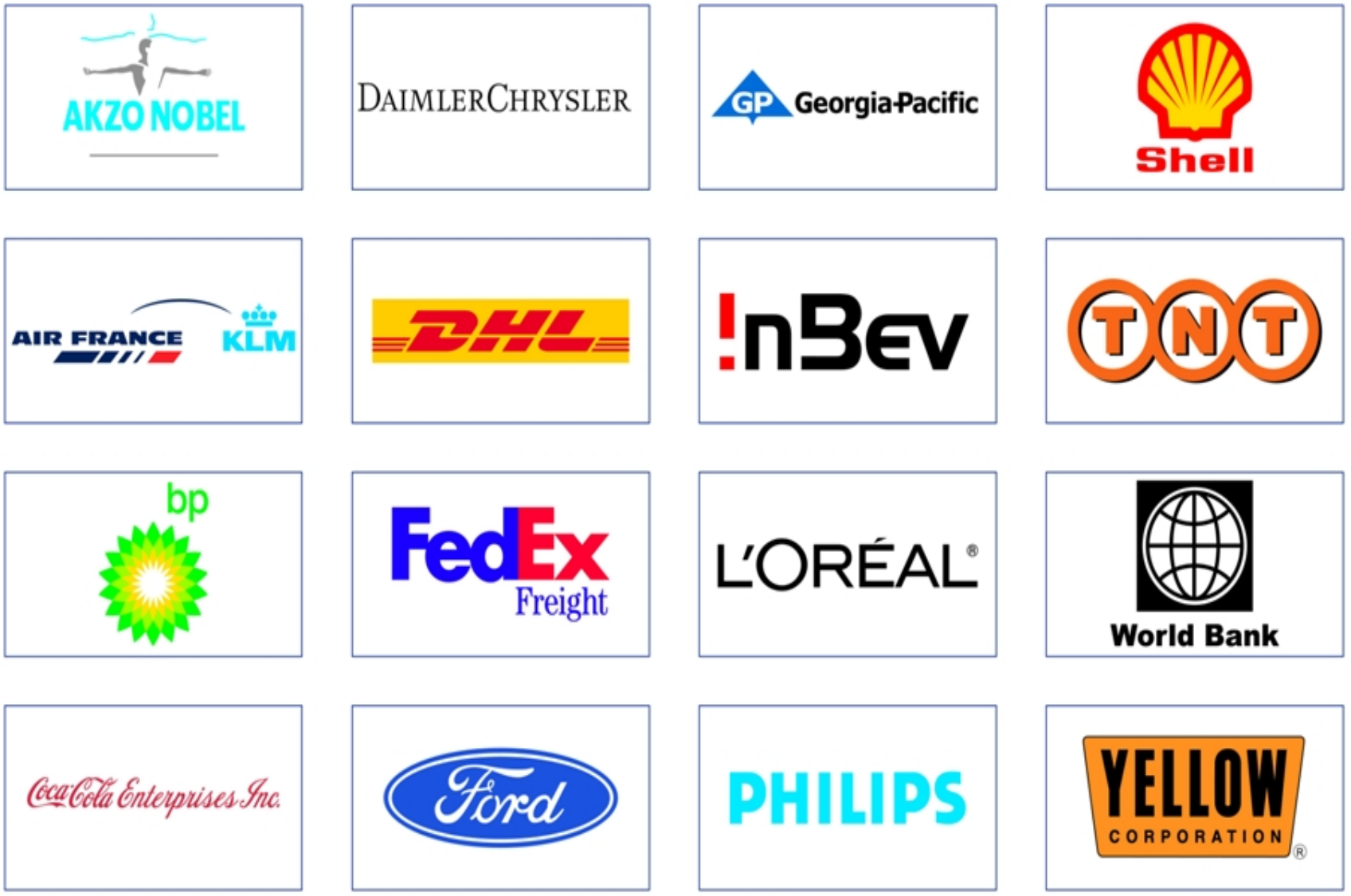
Financial

- World Bank, ING, ABN Amro, RABO, IBM, Shell, BelgaCom, ABP, PGGM

Company profile

ORTEC

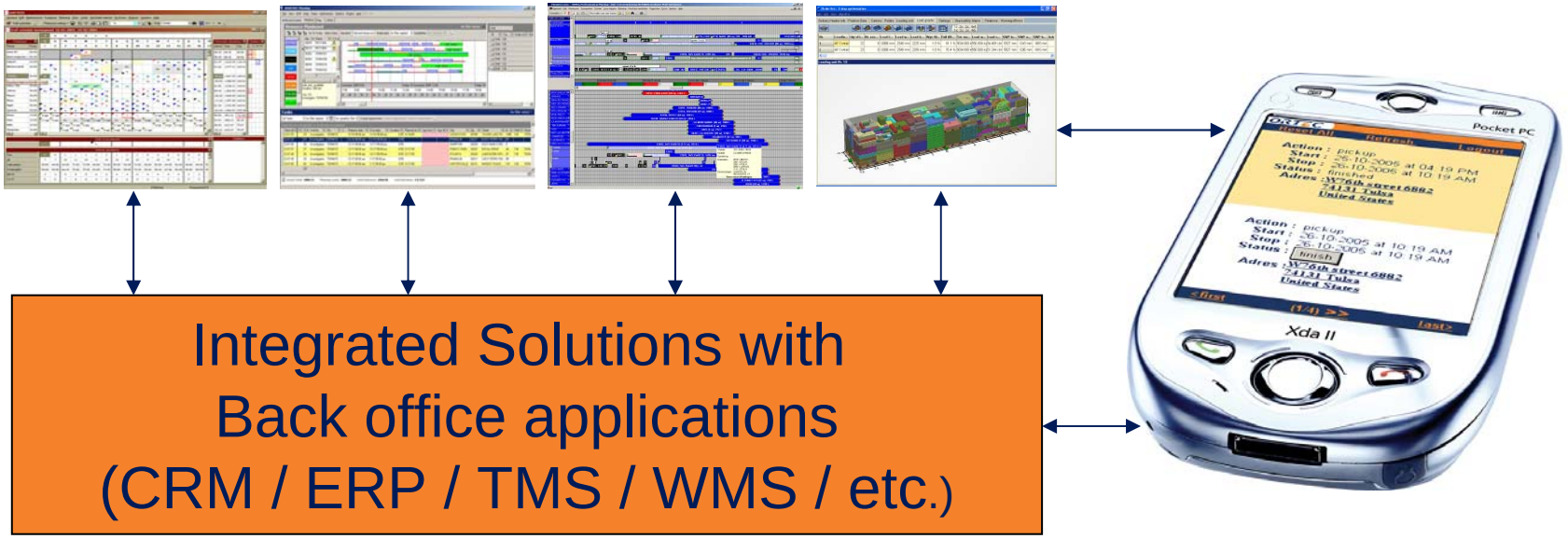
Transport	Industry	Trade	Finance	Aviation
DHL Worldwide Express	ExxonMobil	Campina	ABN·AMRO	SN Brussels Airlines
FedEx Freight	corus	PHILIPS	ING	Air France KLM
TNT Global Express, Logistics & Mail	bp	Coca-Cola Enterprises Inc.	Rabobank	Amsterdam Airport Schiphol
Verstijnen Logistics	IBM	Interbrew	AEGON	Airbus
Georgia-Pacific	Shell	SPAR	G4S Group 4 Securicor	NS
Maersk	Texaco	Carrefour	Trigion	Railion DB Logistics



Did you know all these companies
are ORTEC customers?

PROFESSIONALS IN PLANNING

ORTEC Advanced Planning & Scheduling



Integrated Solutions with
Back office applications
(CRM / ERP / TMS / WMS / etc.)

Advanced Planning Solutions, based upon a common development platform. Knowledge and R&D applicable in multiple industries.

Partner Framework

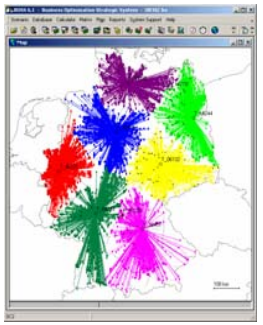
	Bronze (3)	Silver (2)	Gold (1)
Product Partnership (PP)	Standard Interface realized	Joint Product Market Combination	OEM Agreement
Sales Partnership (SP)	Lead generation	Partner Sales; Limited ORTEC support	Completely Independent Sales Cycle
Implementation Partnership (IP)	ORTEC is main contractor for implementation	ORTEC as subcontractor for implementation	Completely independent Implementation by Partner

Industries

- Professional & Public Services
  - Workforce management, professional services scheduling
- Consumer Packaged Goods
  - Transportation & logistics, packing & loading
- Trade, Transportation & Logistics
  - Transportation & logistics, packing & loading
- Oil, Gas & Chemicals
  - VMI, transportation & logistics, production planning
- Manufacturing & Construction
  - Transportation & logistics, production planning, packing & loading
- Healthcare
  - Workforce management, professional services scheduling

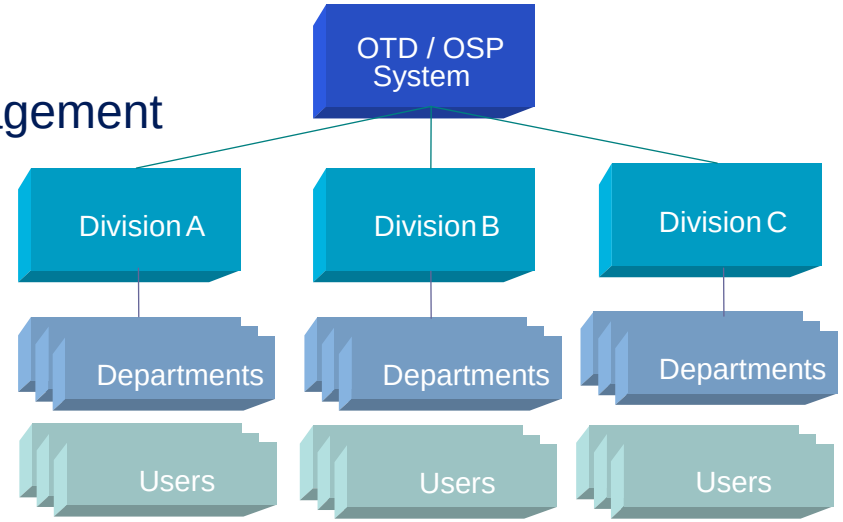
Levels of Planning

- Strategic (BOSS)
  - Quantitative investment justification
  - Tender support
  - Supply Chain (Re)Design



- Tactical (SHORTREC)
  - Periodically optimize C/D route plans
  - What-if scenario's
  - Semi-dynamic planning

- Execution (OTD/OSP)
  - Multi-user / multi-site planning
  - Real-time execution and event management
  - Tracking / PoB / PoD / CoD
  - Management reporting
  - Continuous insight in costs



- Management / KPI reporting at all levels

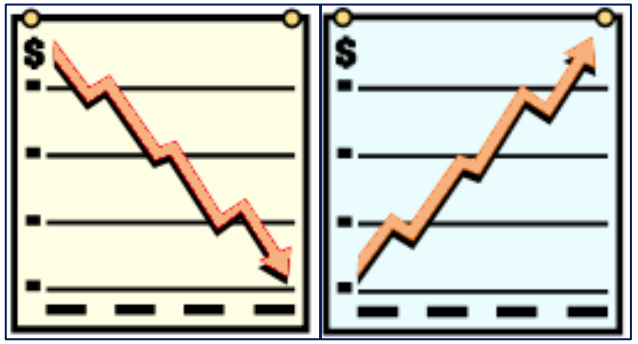
ORTEC ROI

Cost savings achieved through

- Less planning time and effort
- Better quality of plan
- Reduction in (empty) mileage
- Reduction in working time
- Improved capacity use of fleet
- Self billing of subcontractors
- Continuous costs awareness
- Transparency of operation, easier and earlier exceptions management
- Larger span of control per planner
- Less penalties (sub-contractors, government regulations, service-level)

NEA estimate of savings: 5% - 9%. Examples up to 20%.
Pay-back period of investment within 3 - 12 months.

Current challenges in Distribution



- **Complexity due to growth**
  - More orders
  - More trucks and drivers
- **Higher costs, lower prices**
  - Strong competition, low rates
  - Increasing costs of fuel, personnel
- **Changing market**
  - New developments
    - new kind of shipments, modalities, areas and customers
  - Customer requirements
    - higher service level, more info and reliability, shorter time between pickup and delivery
  - Tighter legislation
    - EU-laws, driving time directive
- **To cope with these challenges, the ideal Transport & Distribution company is:**
  - Scaleable - Flexible
  - Efficient – Effective
  - Transparent – Controllable

ORTEC Logistics

Current Needs

Tactical Planning

- Medium term. Can not be changed overnight. Necessary for future.
- Number of central and regional warehouses
- Assignment of customers to regions / warehouses
- Partially fixed daily routes

Operational Planning

- Can be applied on short term
- Planning of transports from central to regional warehouses
- Planning of distribution from regional warehouses to customer
  - Order-assignment
  - Route-planning
  - Loading optimization

High level requirements:

- Multiple different IT-systems are currently used
- Future possibility to integrate with SAP
- De-central, multi-site planning

ORTEC Logistics

Tactical Planning

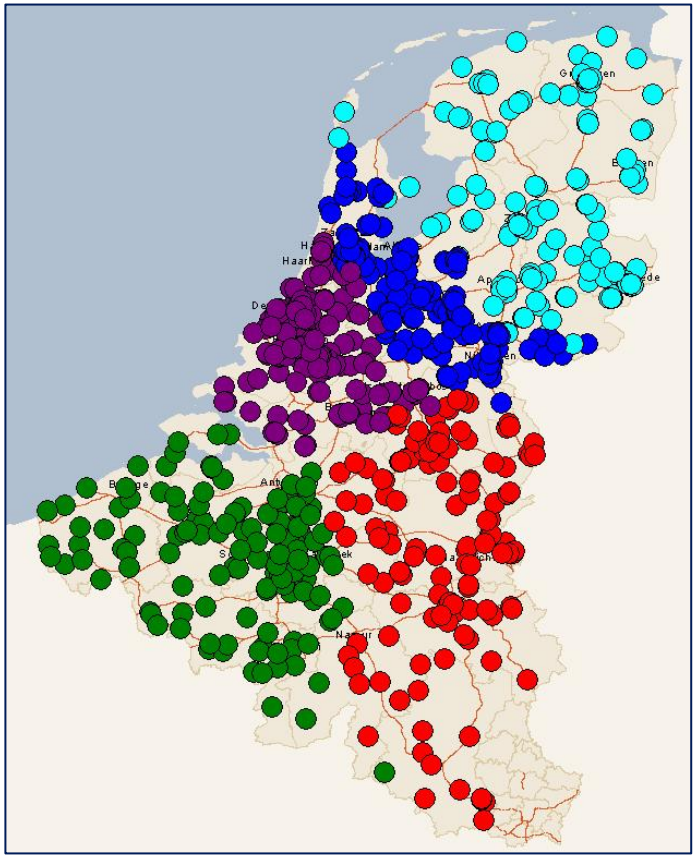
Medium term planning
- Typically once or twice a year

Different needs for different customers
- A, B, C customers. Different order quantities
- Different frequencies of delivery (once a week, twice a day, etc)

Geocoding
- Translate address data (street, number, zipcode, city) in GPS-position
- Dependent on quality of data and detail-level of maps
- For example: 80% automatic geocoding, 20% manual ‘picking’ on map

Assign to regions/warehouses
- Determine which customers should be delivered from which warehouses

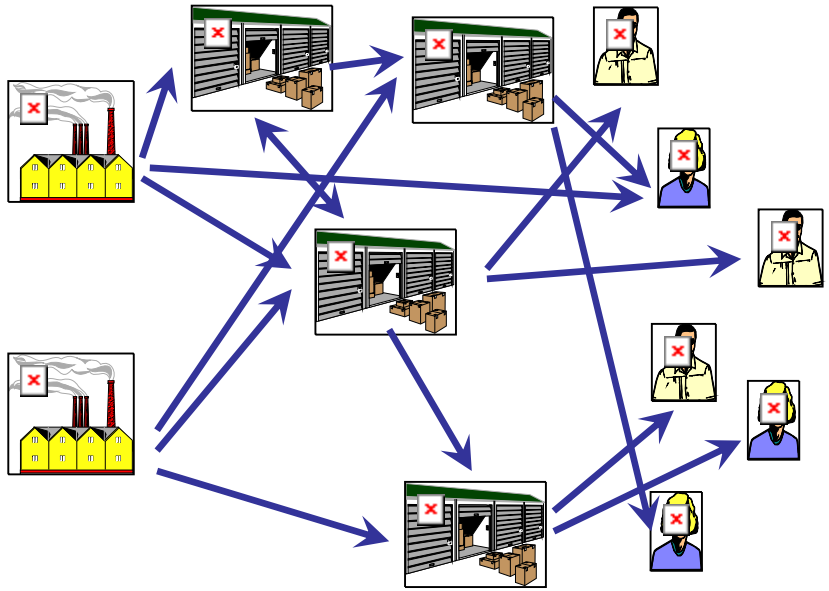
Scenario analysis
- Determine number of warehouses
- Determine location of warehouses
- Key Performance Indicators (KPI’s)
- Compare different scenarios based on these KPI’s



ORTEC Logistics

Tactical Planning

- Computing optimal number and size of depots, hubs, trucks
- Taking primary / secondary transport and production / storage into account
- Restrictions on service, capacities, costs
- Detailed calculation model
- Applied in large number of markets, including trade, retail, food, logistic service provider, oil & gas industry



Answers to questions:

- Calculation of optimal number and size of depots
- Allocation of trucks, customers and products to depots (region allocation)
- Transhipment / consolidation of customers / products / orders
- Central / de-central planning
- Influence of higher service, increasing market, new customers

ORTEC Logistics

Operational Planning

Short term planning
- Typically plan today for tomorrow
- Fixed trips combined with daily flexible trips

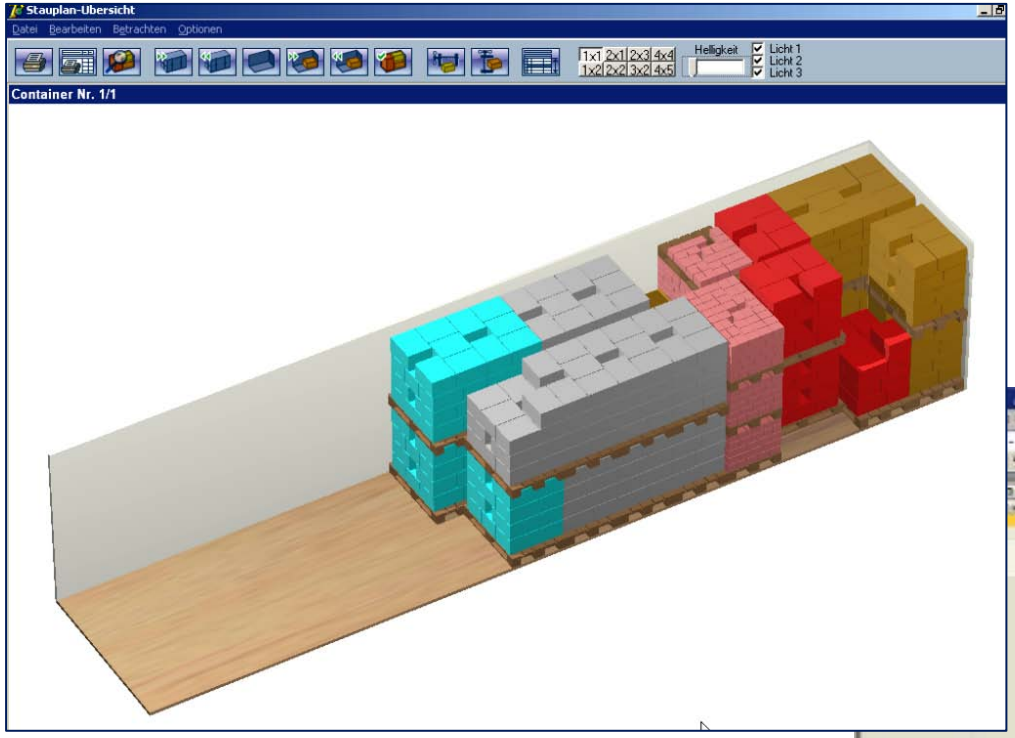
Distribution
- Order assignment: optimal combination of orders
- Routes: minimize total number of kms driven
- Loading: optimize total loading space. Calculate order of (un)loading.

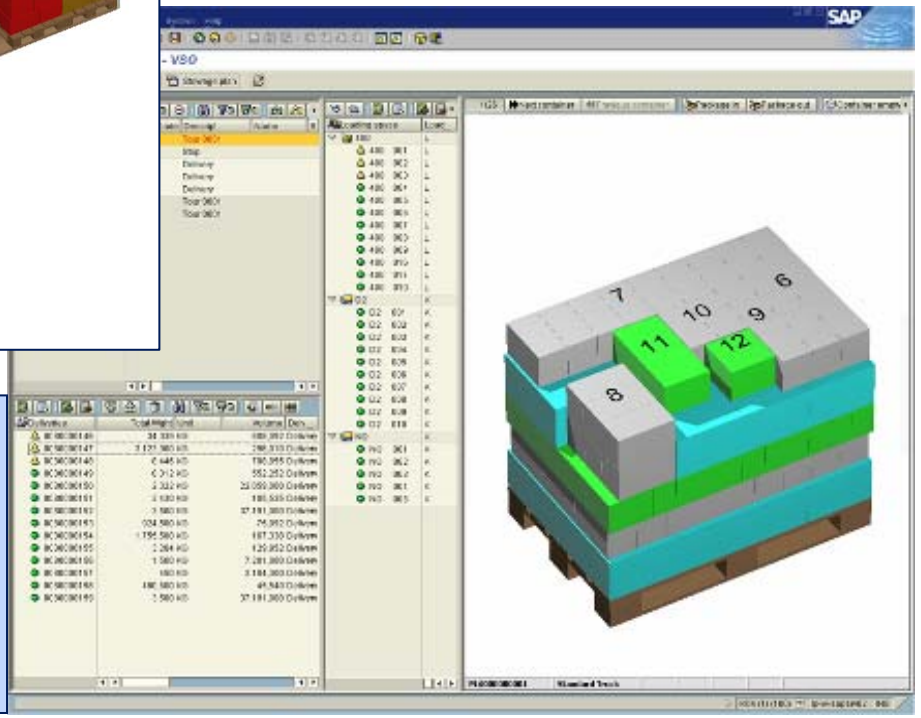
Warehouse handling
- Order picking in warehouse
- Building pallets and further optimize truck space

Track and control
- Possibility to integrate with onboard GPS / Boardcomputer
- Planned km/costs Vs. Actual km/costs

ORTEC LoadDesigner

Operational Planning





- Optimization of volume usage
  - Cartons, boxes, pallets, cages, containers, trucks, trailers
  - Full-Truck Loads / Full Container Loads
- Order picking / pallet building
  - Tracing (badges, RFID)
  - Simultaneous orderpicking
- Feasibility check
  - Stackability, Load & Unload sequence

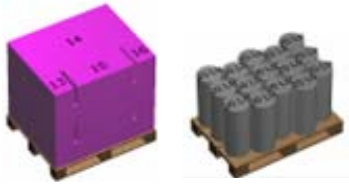
Load Optimization – process

1 . Items in cartons
‘Cartonization’

Selection of the right box

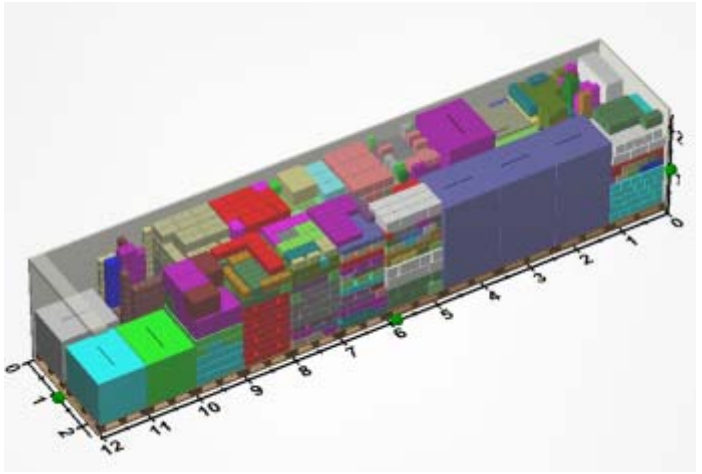
2. Cartons, cylindres and items on pallets.
‘Palletization’

Mixed pallets



Stock pallets

3. Pallets in container or truck



Based on all kinds of consolidation rules and customer restrictions

Load Optimization – features

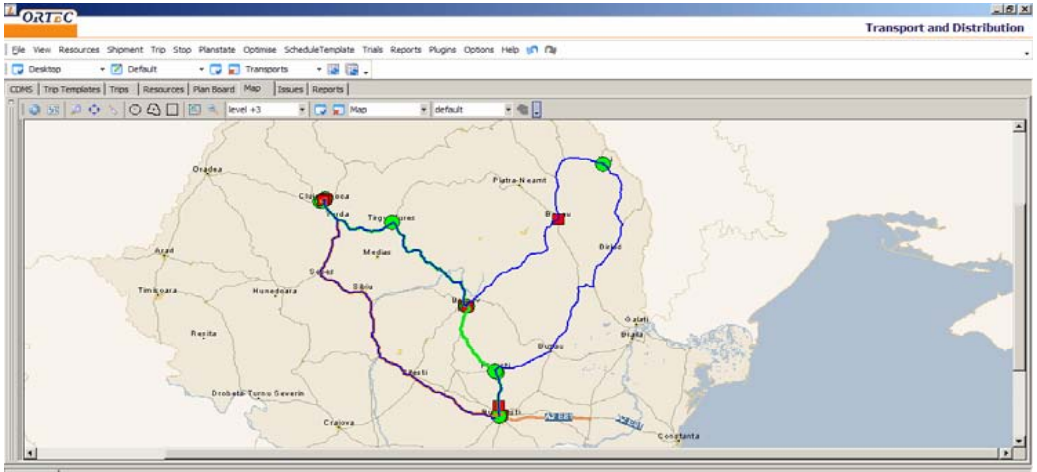
- Stackability taken into account
- Load & Unload sequence taken into account
- No intelligence on work floor needed any more
- Simultaneous orderpicking, quicker through put time in warehouse
- Less damages through better stacking and loading
- Send load result to the receiver in advance by email
- Graphical views / prints of loading list
- Feasibility check

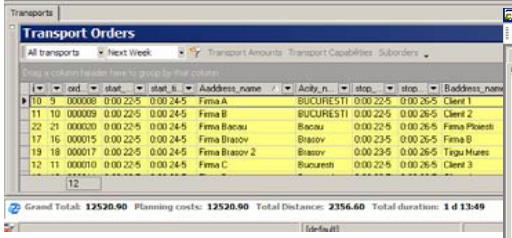
Up / Down	group A	group B	group C	group D
group A	999			
group B	X	999		
group C	X	X	999	
group D	X	X	X	999

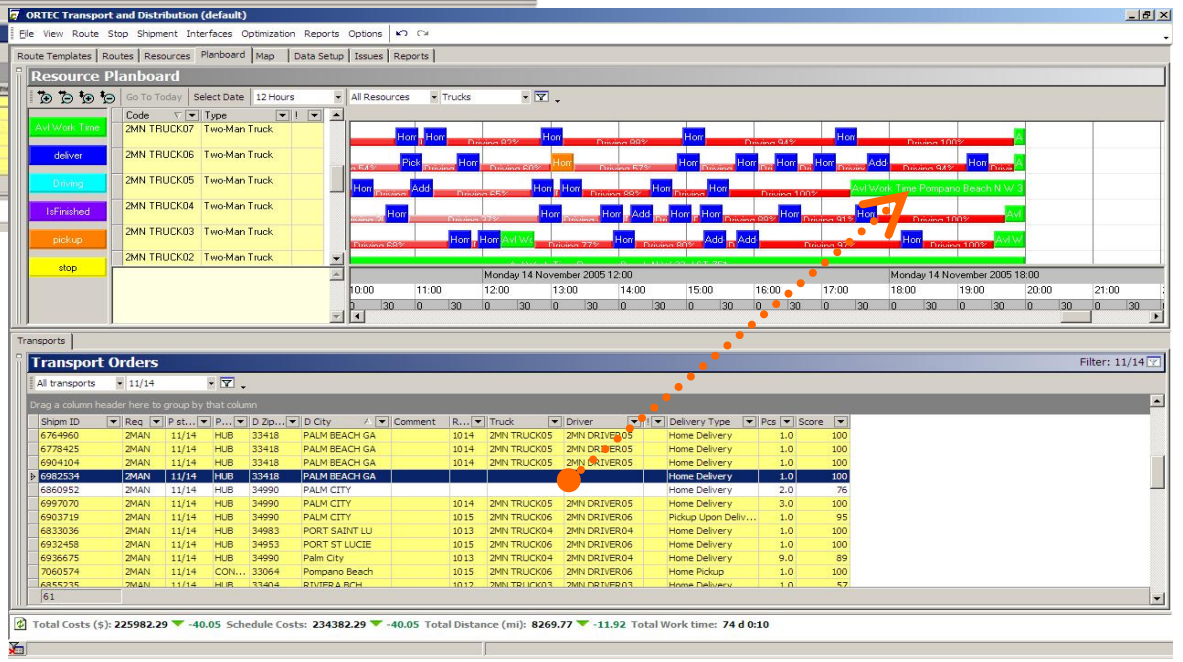
Stackability matrix

ORTEC Transport & Distribution

Operational Planning



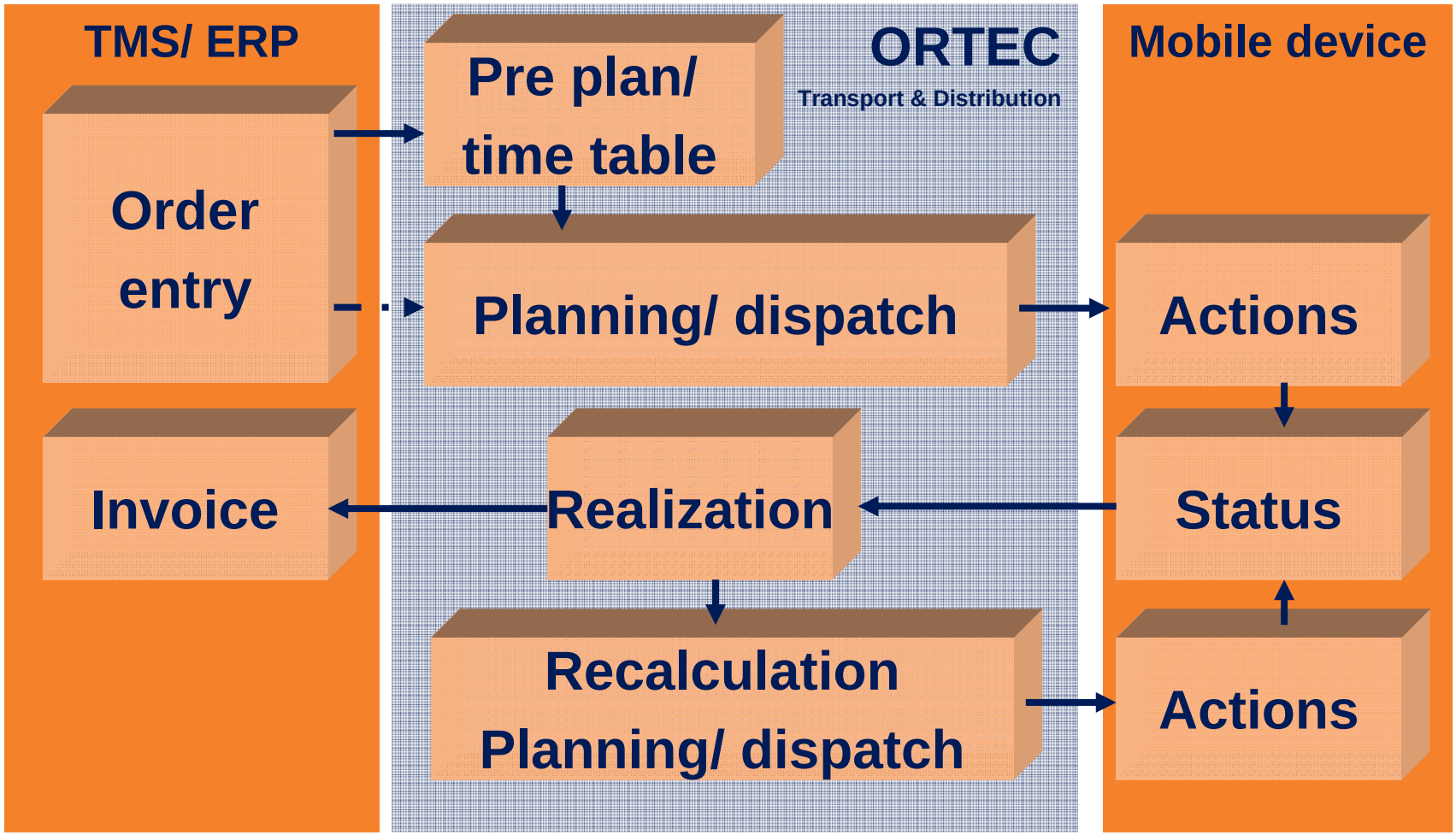




- Optimization of Transports
  - Optimization of trips
  - Trip sheets, KPI reports
- Real-time controls and checks
  - Lead times, ETA
  - Costs (per hour, km, kg, pallet, etc.)
  - Capacity (in pallets, kg, m3, m2, etc.)
  - EU-legislation, driving time directive
- Dispatching
  - Overview of entire planning
  - Interactive map with high level of detail.
  - Track & Trace

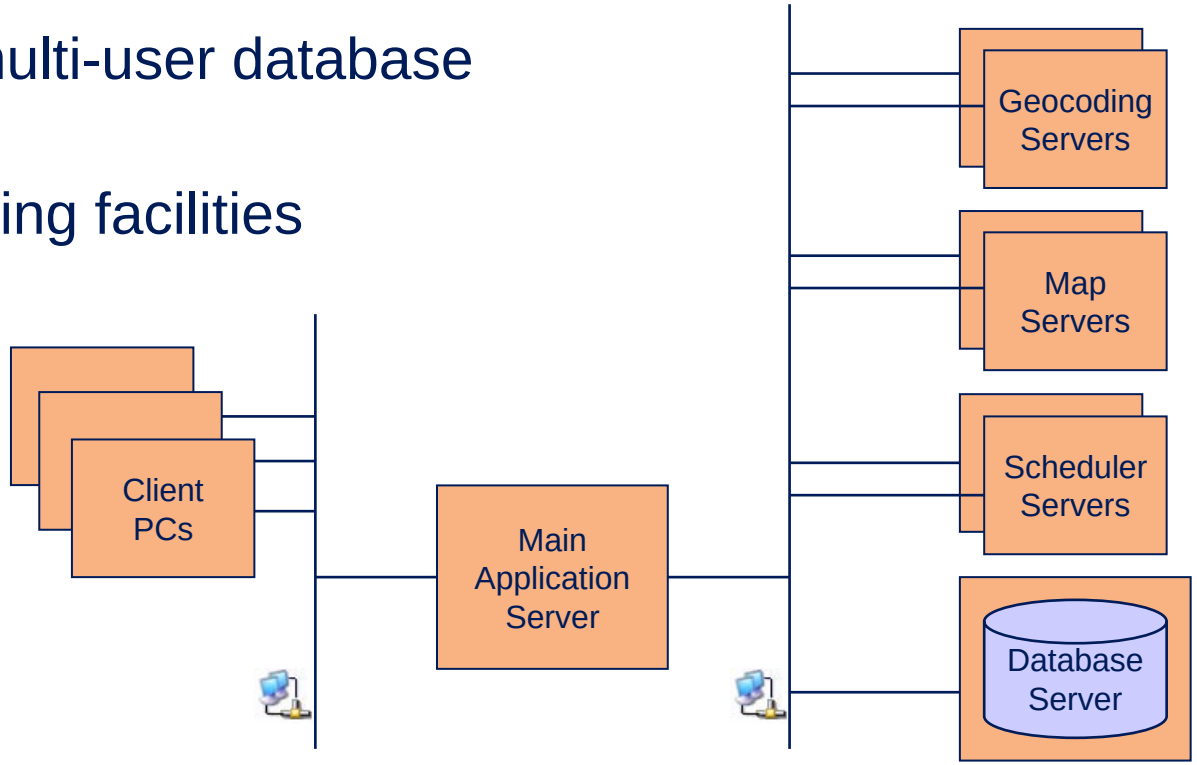
Planning process

Information flow in planning process

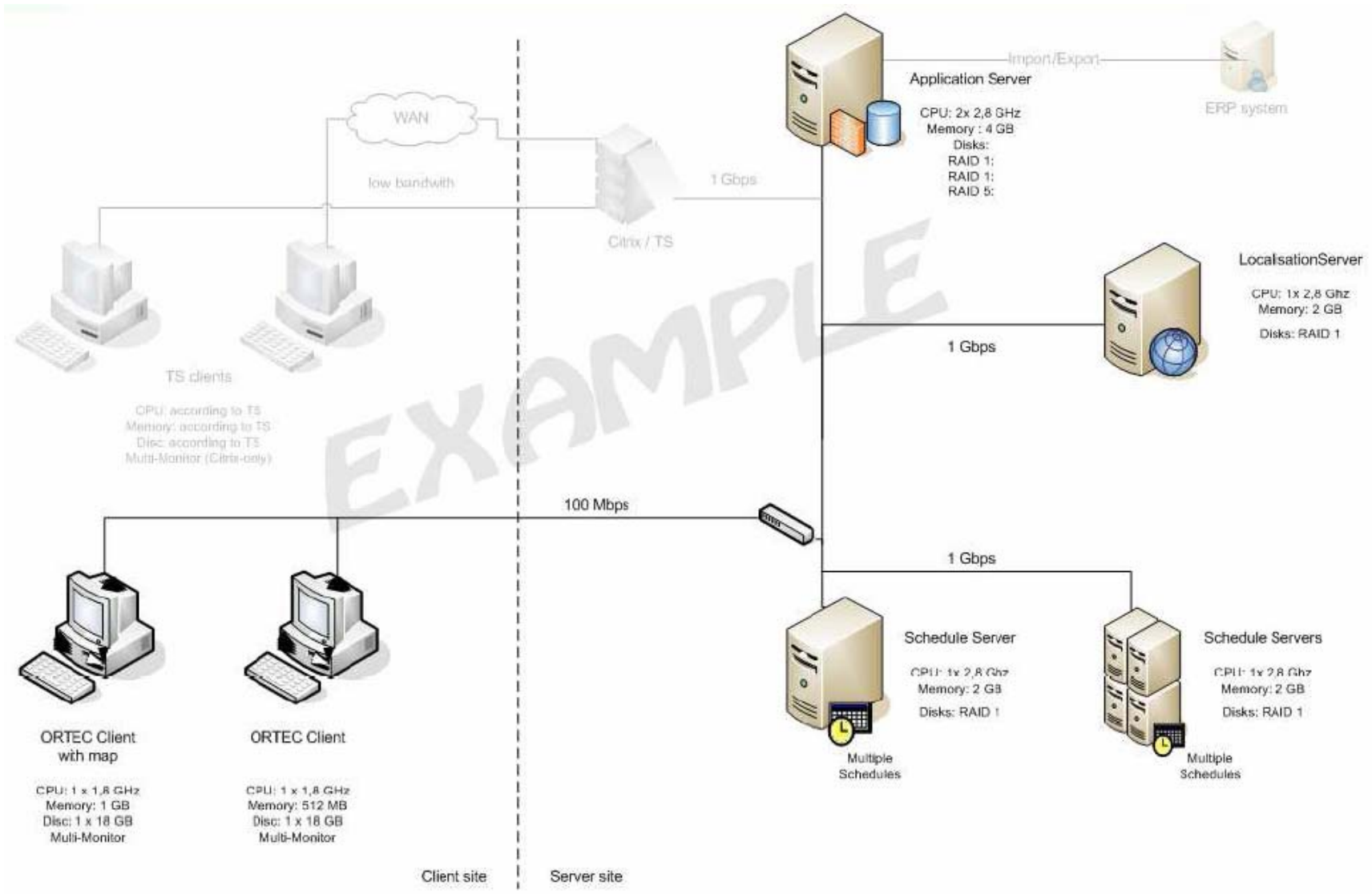


Data management system

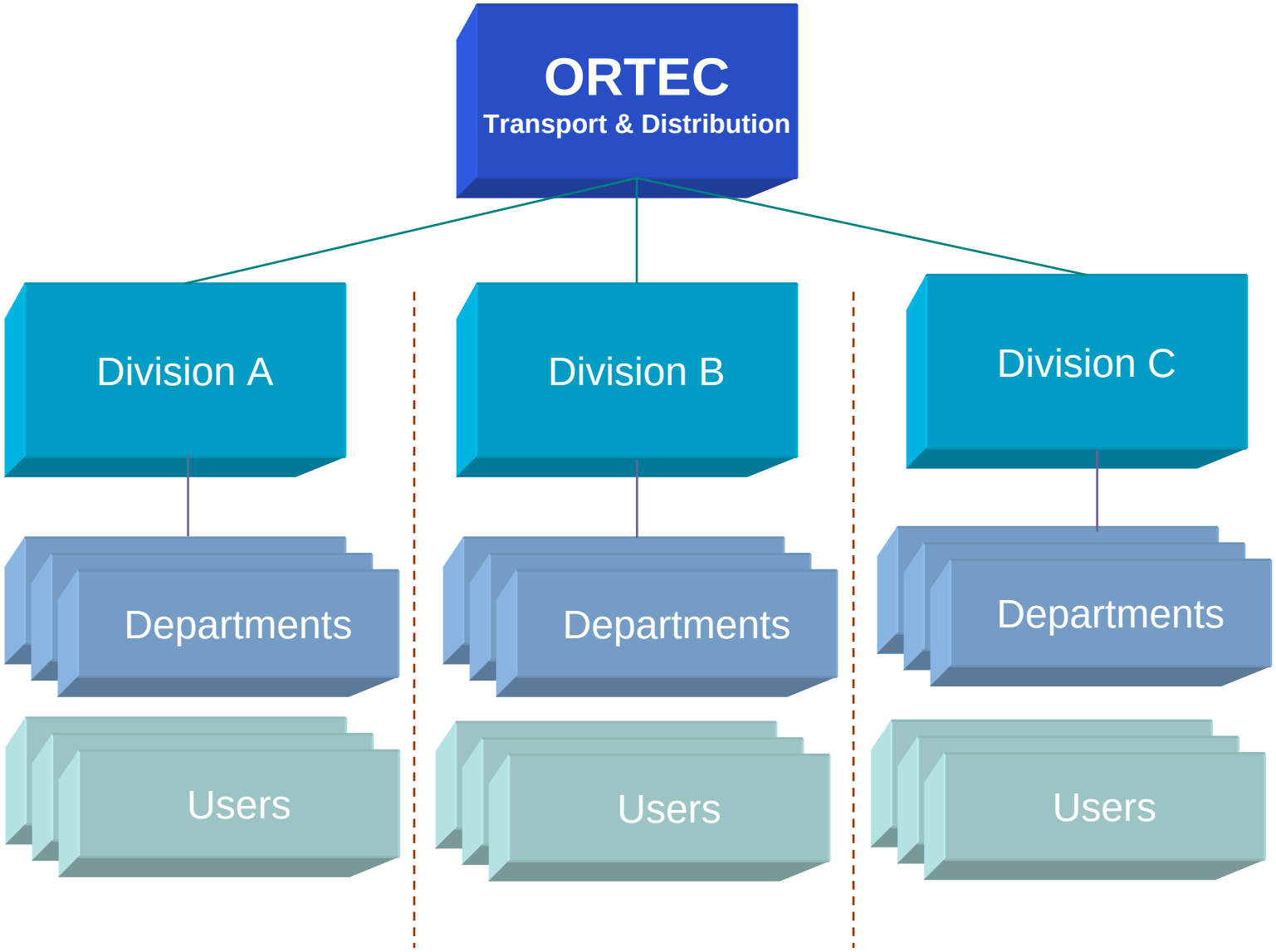
- Contains all elements needed for building a plan
- Every object is also available for import and export
- Import/export is real-time
- Uses a relational multi-user database (SQLserver)
- Supports GEO-coding facilities



Software Deployment

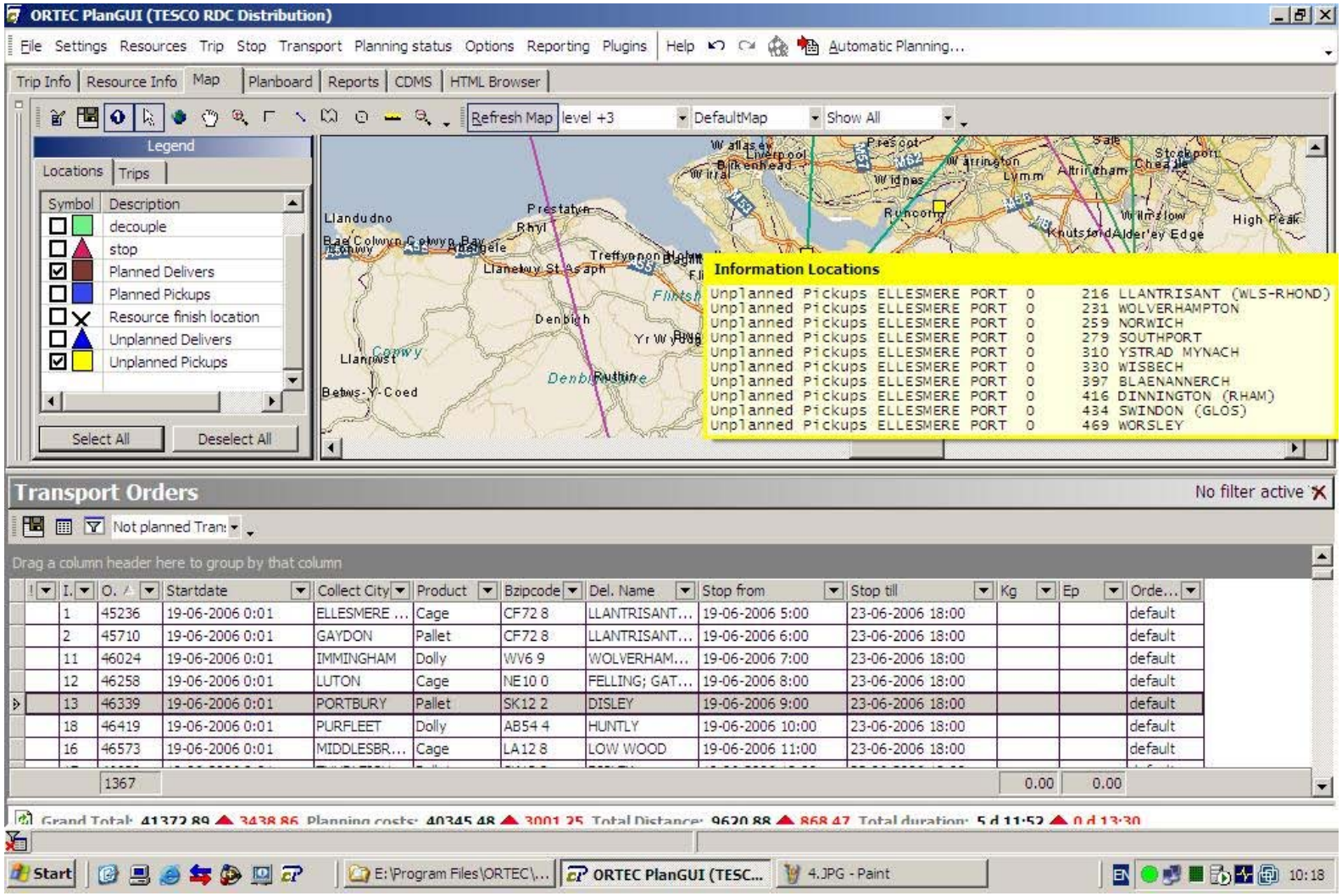


Organizational Structure



ORTEC Transport & Distribution

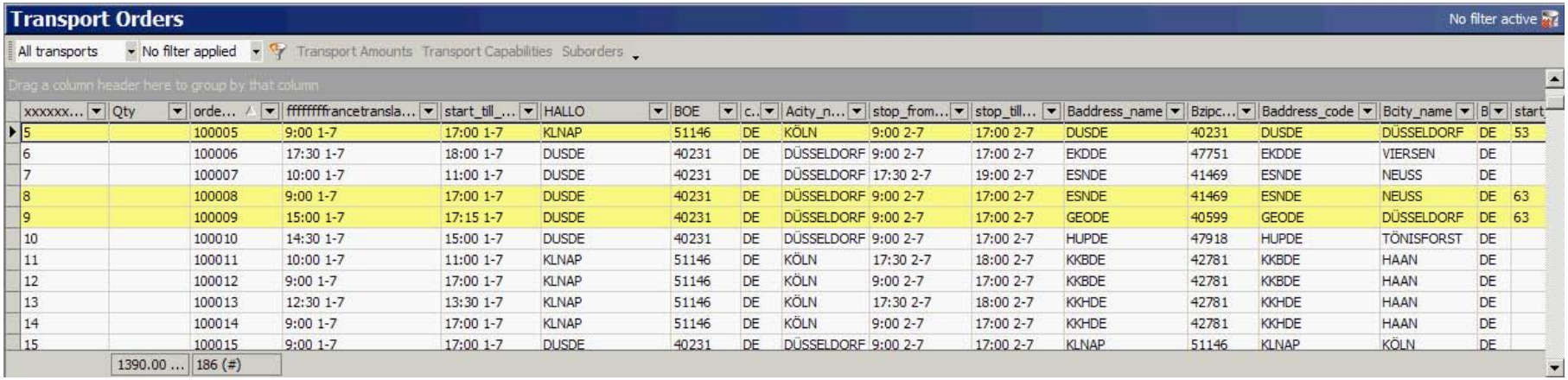
The Graphical User Interface



Basic planning elements

Transport orders

- Consist of 2 tasks; 1 pickup, 1 deliver
- Can consist of more transports A – B
- Can be split for the purposes of Cross-docking
- Can contain sub order information
- Can have an unlimited amount of capacity requirements

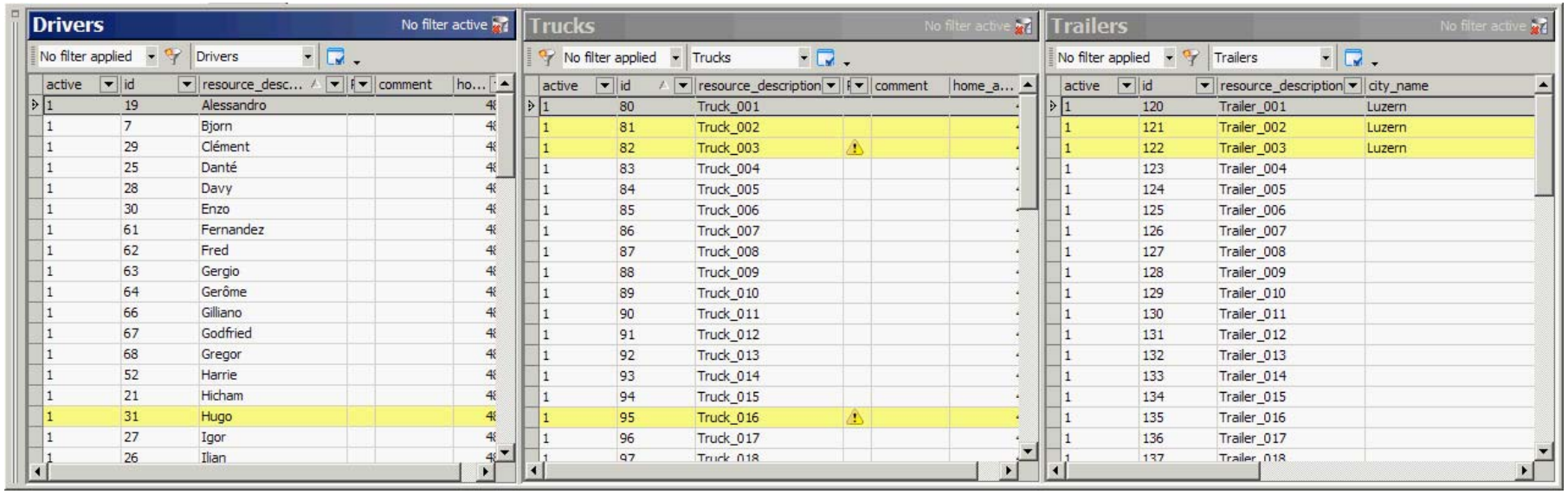


xxxxxx...	Qty	orde...	fffffffffrancetransla...	start_till_...	HALLO	BOE	c..	Acity_n...	stop_from...	stop_till...	Baddress_name	Bzipc...	Baddress_code	Bcity_name	B	start
5		100005	9:00 1-7	17:00 1-7	KLNAP	51146	DE	KÖLN	9:00 2-7	17:00 2-7	DUSDE	40231	DUSDE	DÜSSELDORF	DE	53
6		100006	17:30 1-7	18:00 1-7	DUSDE	40231	DE	DÜSSELDORF	9:00 2-7	17:00 2-7	EKDDE	47751	EKDDE	VIERSEN	DE	
7		100007	10:00 1-7	11:00 1-7	DUSDE	40231	DE	DÜSSELDORF	17:30 2-7	19:00 2-7	ESNDE	41469	ESNDE	NEUSS	DE	
8		100008	9:00 1-7	17:00 1-7	DUSDE	40231	DE	DÜSSELDORF	9:00 2-7	17:00 2-7	ESNDE	41469	ESNDE	NEUSS	DE	63
9		100009	15:00 1-7	17:15 1-7	DUSDE	40231	DE	DÜSSELDORF	9:00 2-7	17:00 2-7	GEODE	40599	GEODE	DÜSSELDORF	DE	63
10		100010	14:30 1-7	15:00 1-7	DUSDE	40231	DE	DÜSSELDORF	9:00 2-7	17:00 2-7	HUPDE	47918	HUPDE	TÖNISFORST	DE	
11		100011	10:00 1-7	11:00 1-7	KLNAP	51146	DE	KÖLN	17:30 2-7	18:00 2-7	KKBDE	42781	KKBDE	HAAN	DE	
12		100012	9:00 1-7	17:00 1-7	KLNAP	51146	DE	KÖLN	9:00 2-7	17:00 2-7	KKBDE	42781	KKBDE	HAAN	DE	
13		100013	12:30 1-7	13:30 1-7	KLNAP	51146	DE	KÖLN	17:30 2-7	18:00 2-7	KKHDE	42781	KKHDE	HAAN	DE	
14		100014	9:00 1-7	17:00 1-7	KLNAP	51146	DE	KÖLN	9:00 2-7	17:00 2-7	KKHDE	42781	KKHDE	HAAN	DE	
15		100015	9:00 1-7	17:00 1-7	DUSDE	40231	DE	DÜSSELDORF	9:00 2-7	17:00 2-7	KLNAP	51146	KLNAP	KÖLN	DE	
	1390.00 ...	186 (#)														

Basic planning elements

Resources

- Drivers
- Trucks
- Trailers



Drivers — No filter active

No filter applied | Drivers

active	id	resource_desc...	comment	ho...
1	19	Alessandro		
1	7	Bjorn		
1	29	Clément		
1	25	Danté		
1	28	Davy		
1	30	Enzo		
1	61	Fernandez		
1	62	Fred		
1	63	Gergio		
1	64	Gerôme		
1	66	Gilliano		
1	67	Godfried		
1	68	Gregor		
1	52	Harrie		
1	21	Hicham		
1	31	Hugo		
1	27	Igor		
1	26	Ilian		

Trucks — No filter active

No filter applied | Trucks

active	id	resource_description	comment	home_a...
1	80	Truck_001		
1	81	Truck_002		
1	82	Truck_003		
1	83	Truck_004		
1	84	Truck_005		
1	85	Truck_006		
1	86	Truck_007		
1	87	Truck_008		
1	88	Truck_009		
1	89	Truck_010		
1	90	Truck_011		
1	91	Truck_012		
1	92	Truck_013		
1	93	Truck_014		
1	94	Truck_015		
1	95	Truck_016		
1	96	Truck_017		
1	97	Truck_018		

Trailers — No filter active

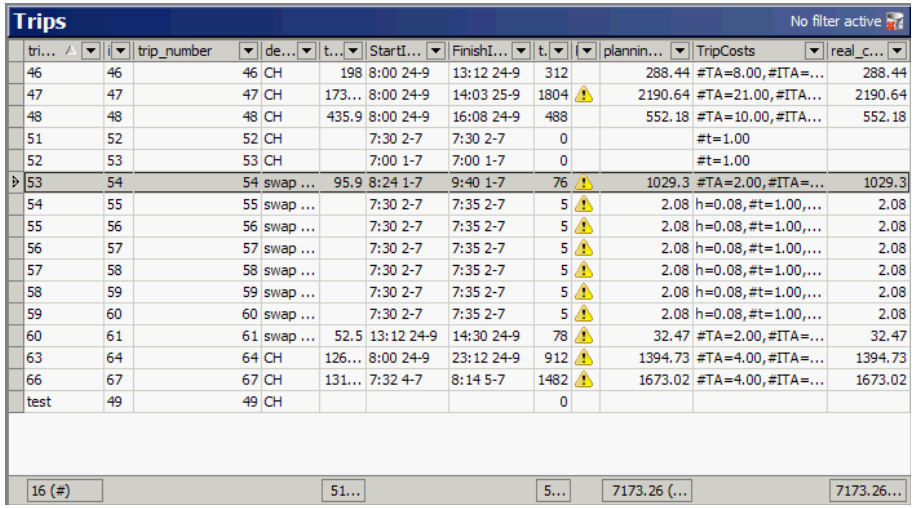
No filter applied | Trailers

active	id	resource_description	city_name
1	120	Trailer_001	Luzern
1	121	Trailer_002	Luzern
1	122	Trailer_003	Luzern
1	123	Trailer_004	
1	124	Trailer_005	
1	125	Trailer_006	
1	126	Trailer_007	
1	127	Trailer_008	
1	128	Trailer_009	
1	129	Trailer_010	
1	130	Trailer_011	
1	131	Trailer_012	
1	132	Trailer_013	
1	133	Trailer_014	
1	134	Trailer_015	
1	135	Trailer_016	
1	136	Trailer_017	
1	137	Trailer_018	

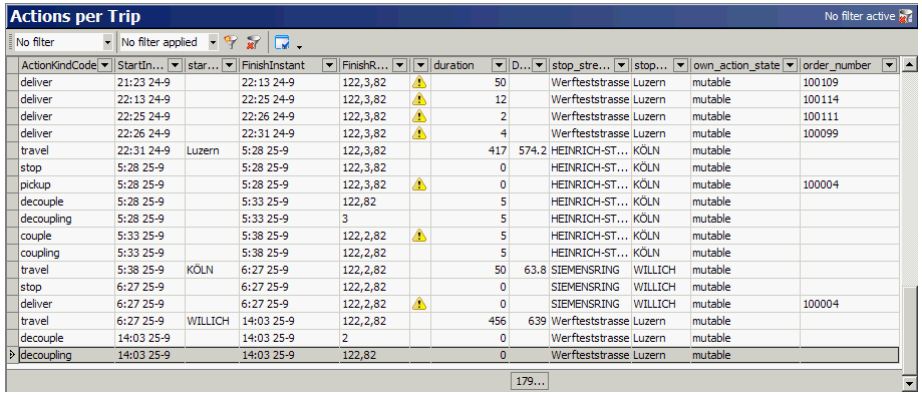
Basic planning elements

Trips – Trip Actions

- Flexible definition of this concept
  - trips, shifts, routes, transports
- Several ways to generate shifts
  - using templates, the Trip Wizard, the Transport Wizard
- coupling of resources
- traveling
- pickup – delivery
- waiting



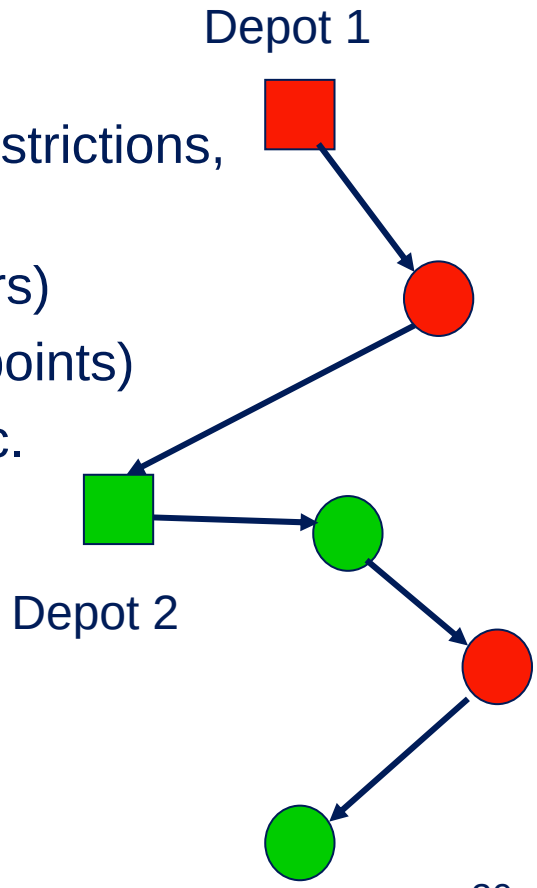
tri...	i	trip_number	de...	t...	StartI...	FinishI...	t.		plannin...	TripCosts	real_c...
46	46	46	CH	198	8:00 24-9	13:12 24-9	312		288.44	#TA=8.00,#ITA=...	288.44
47	47	47	CH	173...	8:00 24-9	14:03 25-9	1804	⚠	2190.64	#TA=21.00,#ITA...	2190.64
48	48	48	CH	435.9	8:00 24-9	16:08 24-9	488		552.18	#TA=10.00,#ITA...	552.18
51	52	52	CH		7:30 2-7	7:30 2-7	0			#t=1.00	
52	53	53	CH		7:00 1-7	7:00 1-7	0			#t=1.00	
53	54	54	swap ...	95.9	8:24 1-7	9:40 1-7	76	⚠	1029.3	#TA=2.00,#ITA=...	1029.3
54	55	55	swap ...		7:30 2-7	7:35 2-7	5	⚠	2.08	h=0.08,#t=1.00,...	2.08
55	56	56	swap ...		7:30 2-7	7:35 2-7	5	⚠	2.08	h=0.08,#t=1.00,...	2.08
56	57	57	swap ...		7:30 2-7	7:35 2-7	5	⚠	2.08	h=0.08,#t=1.00,...	2.08
57	58	58	swap ...		7:30 2-7	7:35 2-7	5	⚠	2.08	h=0.08,#t=1.00,...	2.08
58	59	59	swap ...		7:30 2-7	7:35 2-7	5	⚠	2.08	h=0.08,#t=1.00,...	2.08
59	60	60	swap ...		7:30 2-7	7:35 2-7	5	⚠	2.08	h=0.08,#t=1.00,...	2.08
60	61	61	swap ...	52.5	13:12 24-9	14:30 24-9	78	⚠	32.47	#TA=2.00,#ITA=...	32.47
63	64	64	CH	126...	8:00 24-9	23:12 24-9	912	⚠	1394.73	#TA=4.00,#ITA=...	1394.73
66	67	67	CH	131...	7:32 4-7	8:14 5-7	1482	⚠	1673.02	#TA=4.00,#ITA=...	1673.02
test	49	49	CH				0				
16 (#)				51...			5...		7173.26 (...		7173.26...



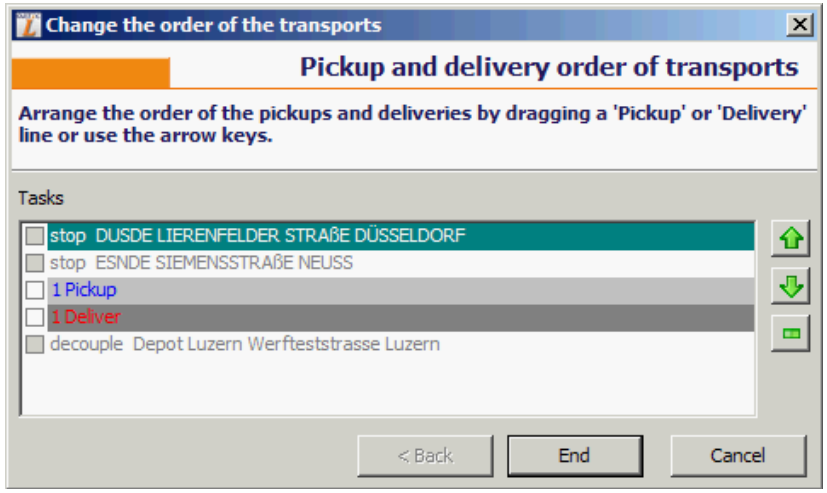
ActionKindCode	StartIn...	star...	FinishInstant	FinishR...		duration	D...	stop_stre...	stop...	own_action_state	order_number
deliver	21:23 24-9		22:13 24-9	122,3,82	⚠	50		Werfteststrasse	Luzern	mutable	100109
deliver	22:13 24-9		22:25 24-9	122,3,82	⚠	12		Werfteststrasse	Luzern	mutable	100114
deliver	22:25 24-9		22:26 24-9	122,3,82	⚠	2		Werfteststrasse	Luzern	mutable	100111
deliver	22:26 24-9		22:31 24-9	122,3,82	⚠	4		Werfteststrasse	Luzern	mutable	100099
travel	22:31 24-9	Luzern	5:28 25-9	122,3,82		417	574.2	HEINRICH-ST...	KÖLN	mutable	
stop	5:28 25-9		5:28 25-9	122,3,82		0		HEINRICH-ST...	KÖLN	mutable	
pickup	5:28 25-9		5:28 25-9	122,3,82	⚠	0		HEINRICH-ST...	KÖLN	mutable	100004
decouple	5:28 25-9		5:33 25-9	122,82		5		HEINRICH-ST...	KÖLN	mutable	
decoupling	5:28 25-9		5:33 25-9	3		5		HEINRICH-ST...	KÖLN	mutable	
couple	5:33 25-9		5:38 25-9	122,2,82	⚠	5		HEINRICH-ST...	KÖLN	mutable	
coupling	5:33 25-9		5:38 25-9	122,2,82		5		HEINRICH-ST...	KÖLN	mutable	
travel	5:38 25-9	KÖLN	6:27 25-9	122,2,82		50	63.8	SIEMENSRING	WILLICH	mutable	
stop	6:27 25-9		6:27 25-9	122,2,82		0		SIEMENSRING	WILLICH	mutable	
deliver	6:27 25-9		6:27 25-9	122,2,82	⚠	0		SIEMENSRING	WILLICH	mutable	100004
travel	6:27 25-9	WILLICH	14:03 25-9	122,2,82		456	639	Werfteststrasse	Luzern	mutable	
decouple	14:03 25-9		14:03 25-9	2		0		Werfteststrasse	Luzern	mutable	
decoupling	14:03 25-9		14:03 25-9	122,82		0		Werfteststrasse	Luzern	mutable	
						179...					

Key functionalities

- Multi-depot pickup & delivery (select best depot)
- Reloading or consolidation at additional depot
- Multiple trips per day, multi-day planning
- Multiple vehicle start points
- Product – depot restrictions, product – vehicle restrictions, time dependent stock per product per depot
- Time windows, priorities (must go / may go orders)
- Merchant deliveries (variable start and delivery points)
- Mixed pick-up & delivery, collections, returns, etc.
- Subcontractor Tariff Management
- Reports
- ...



Planning modes



Manual planning

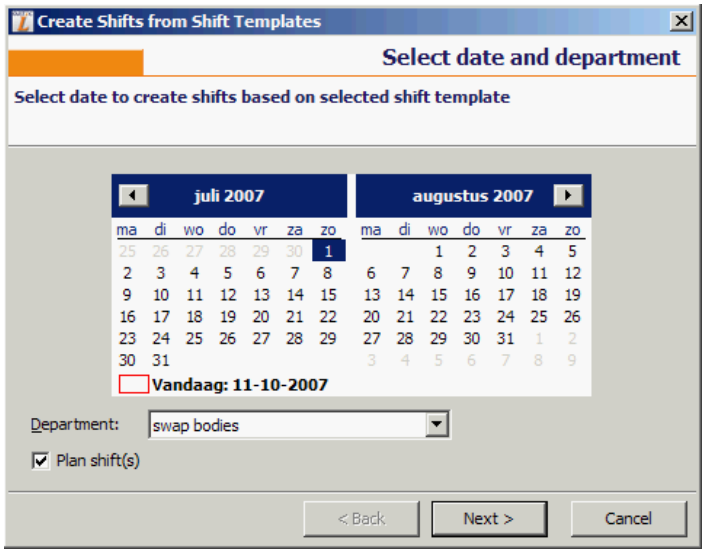
- Using drag & drop you can assign transport orders to existing trips.

Template rollout

- You can create trips by rolling out predefined trip templates.

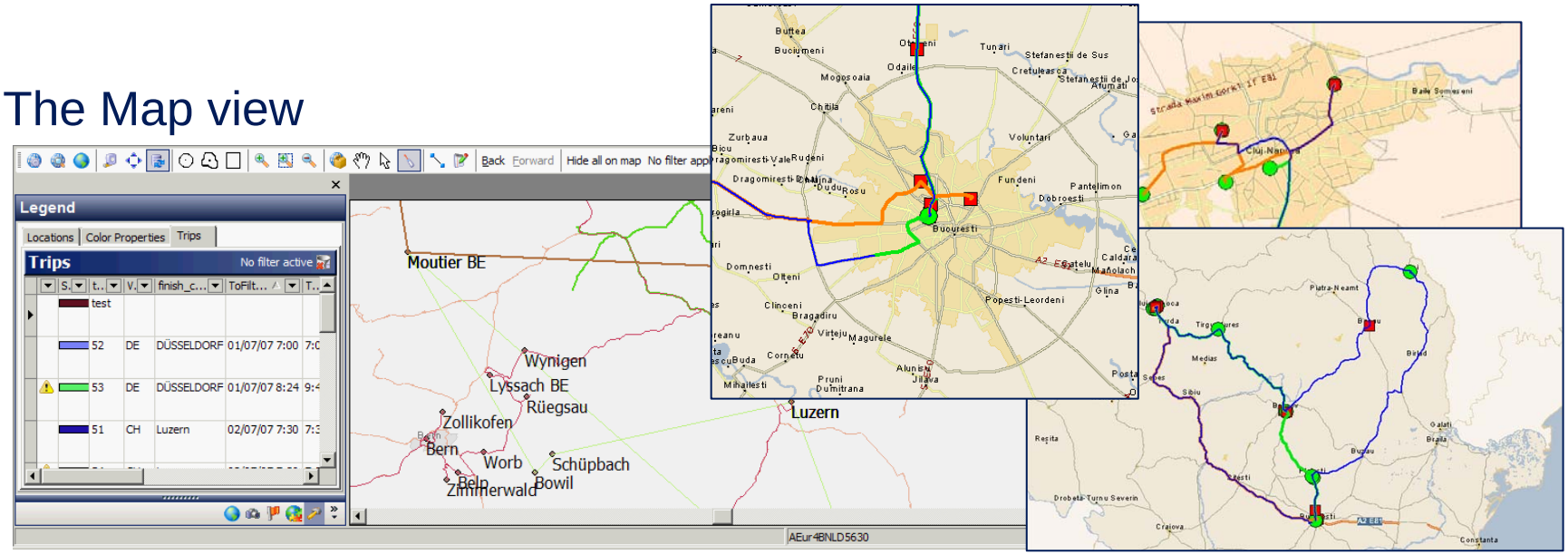
Automatic planning

- Assign orders to resource combinations.
- Optimize routes according to predefined criteria
- Respect restrictions - constraints

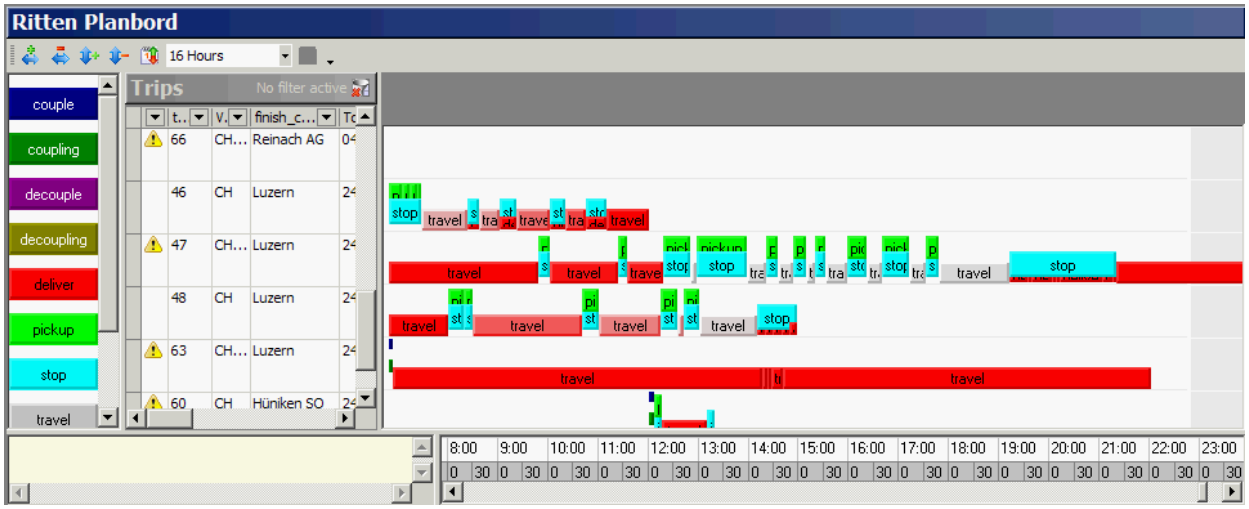


Graphical User Interface (advanced)

The Map view

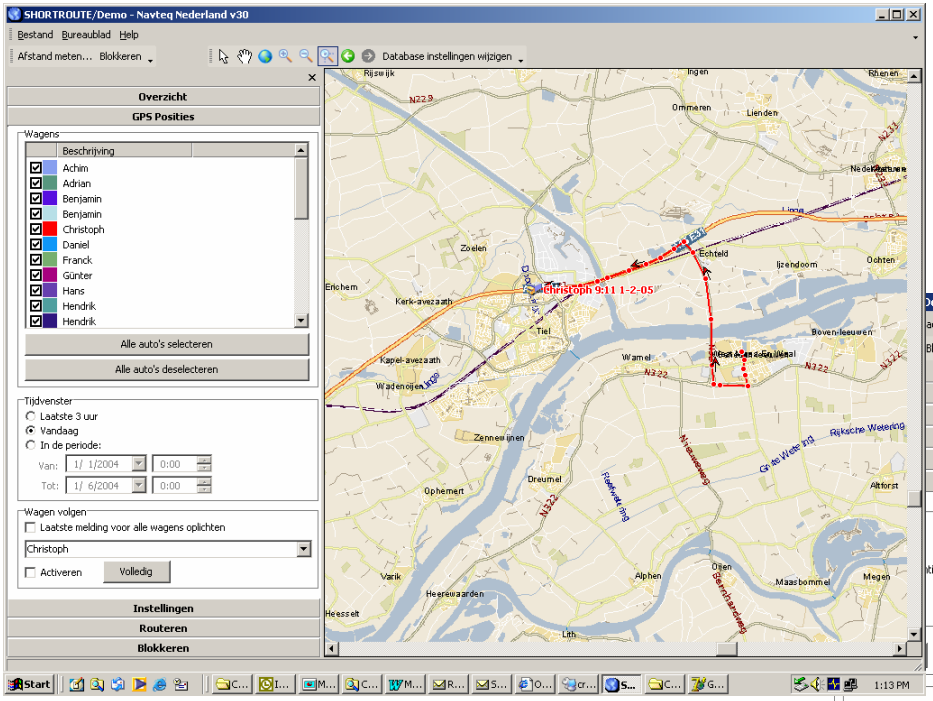


The Planboard (Gantt chart view)

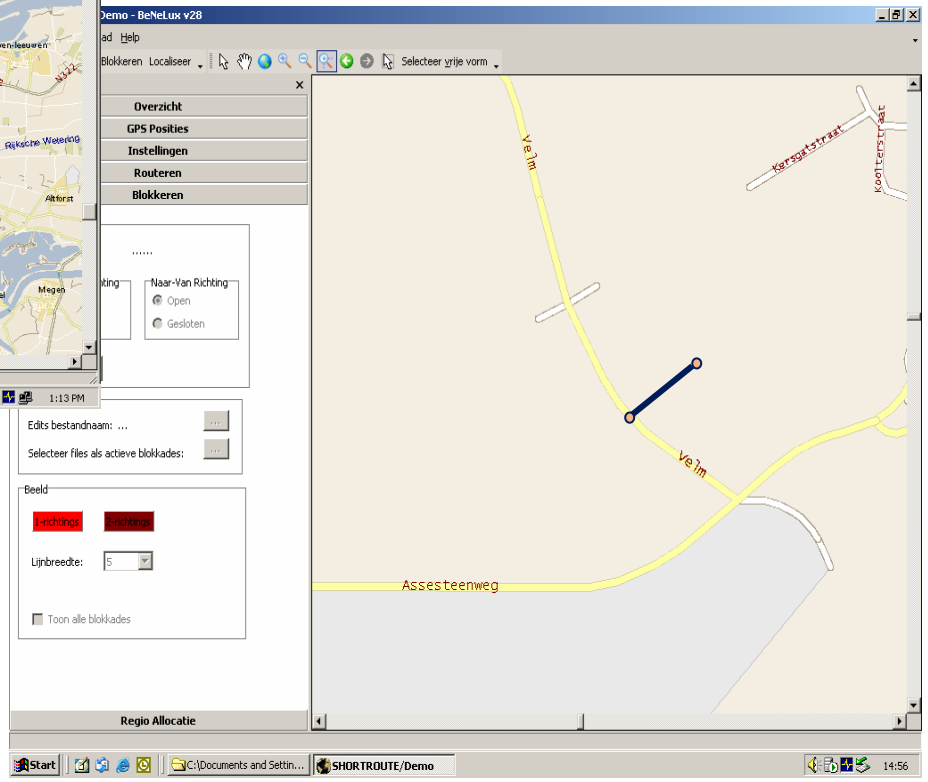


ORTEC GEO info

Operational Planning



- Detailed localisation (street segment) & computation time / distance (seconds / meters)
- Detailed track & trace, all options possible

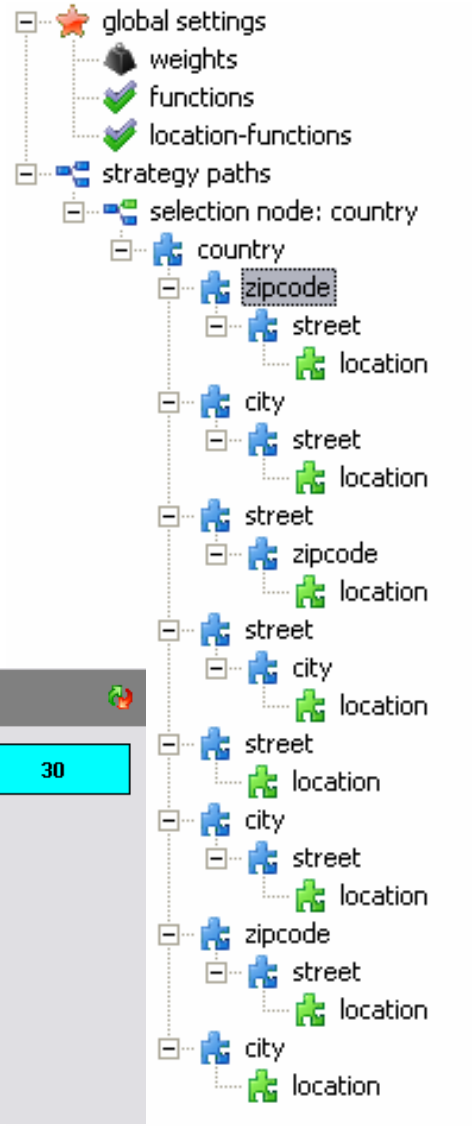


- Blocking of roads by weight, height, hazardous materials, goods, special governmental requirements, etc.
- Detailed traffic jams of road segments, regions

ORTEC Logistics – Geocoding

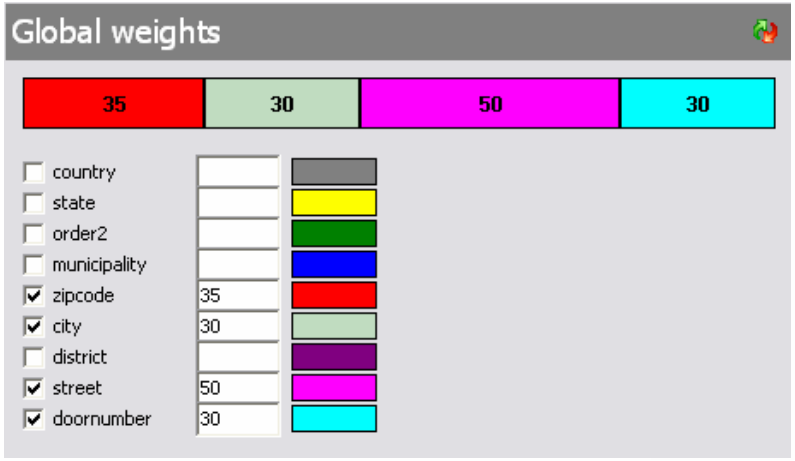
Geocoding Strategy

- Filter data by using predefined search & match paths
- Select best match according to predefined criteria
- Calculate SCORE according to predefined weights on the search variables



Supports:

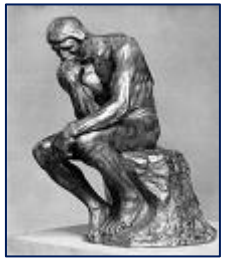
- Fully automatic localization
- Assisted manual localization (visual)

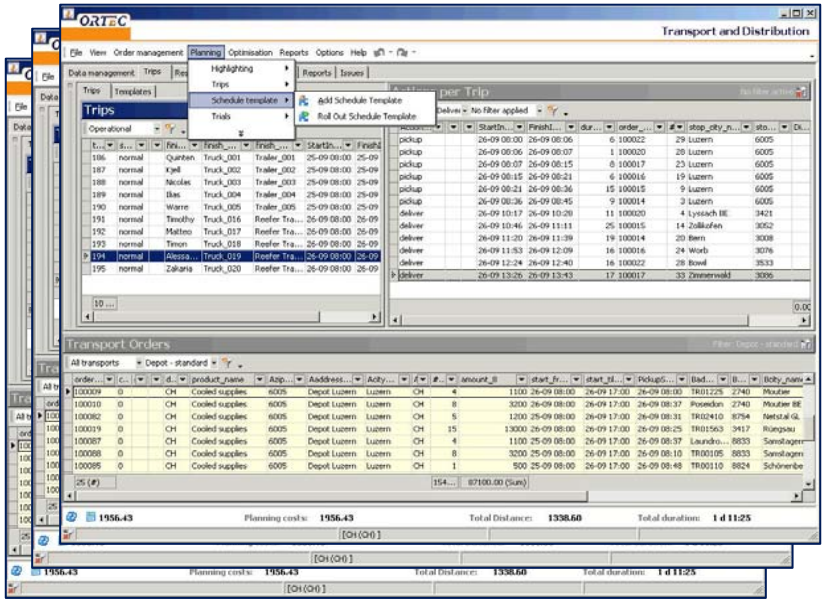


Scenarios and KPI reports

Scenarios and KPI Reports

- Configurable column totals provide direct insight
- Scenario planning





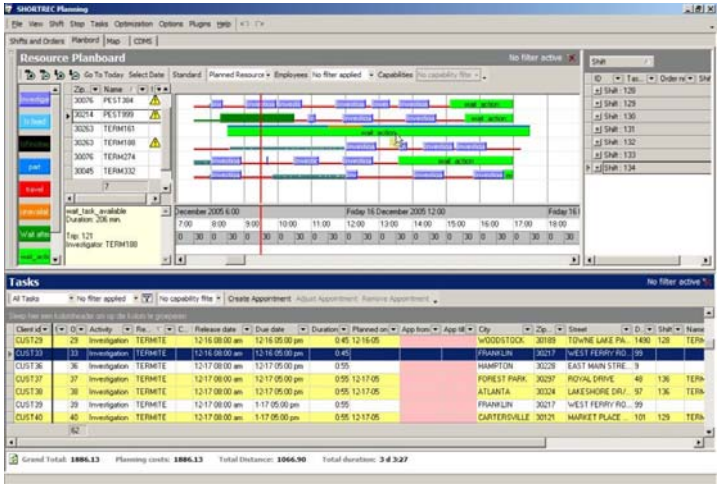
- Compare KPI's using (graphical) reports

Communication schemes

Integration

Routes

Realizations



ERP System

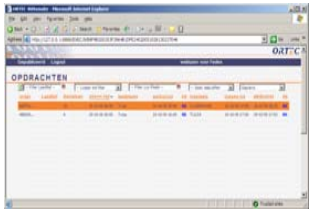
Orders

Realizations

Appointments

Load status

Track & Trace



Reporting

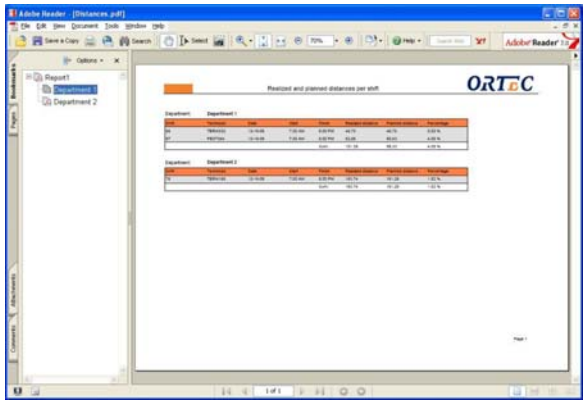
Business Objects

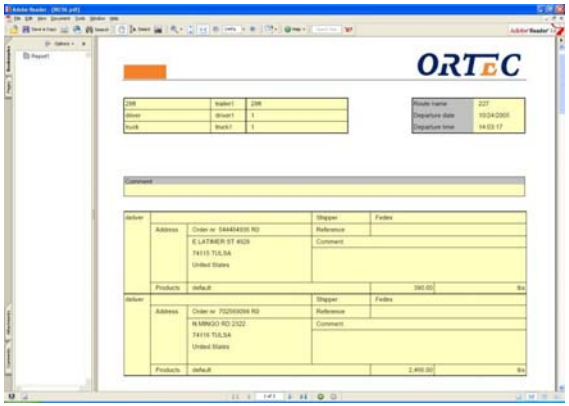
ORTEC Business Intelligence

Integrated Reporting

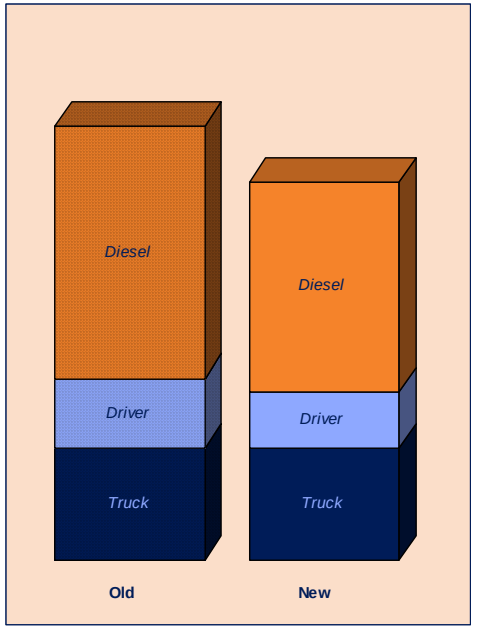
Business Objects

- Advanced querying and reporting
- No Db-model knowledge required
- End user can easily create new reports
- Both operational database and data warehouse





Return on Investment



Efficiency – Effectiveness:

- Less km (cost reduction)
- Less planners
- Higher capacity usage
- More reliable deliveries

Abstract case:

- 500 trucks
- 100,000 km per truck per year
- Assumed costs: 75,000 EUR (75 ct / km) per truck (incl. driver)

When saving only 5% on operational costs
This means: more than **1.5 Mio EUR**!!