





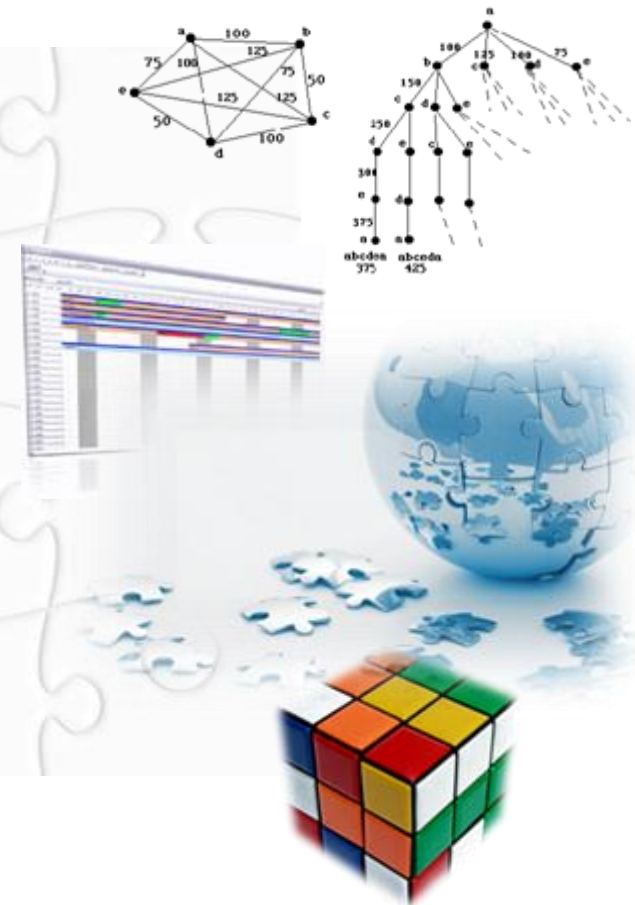
Quintiq Nightcap

June 27, 2011, David Rijsman



Quintiq Founding Vision

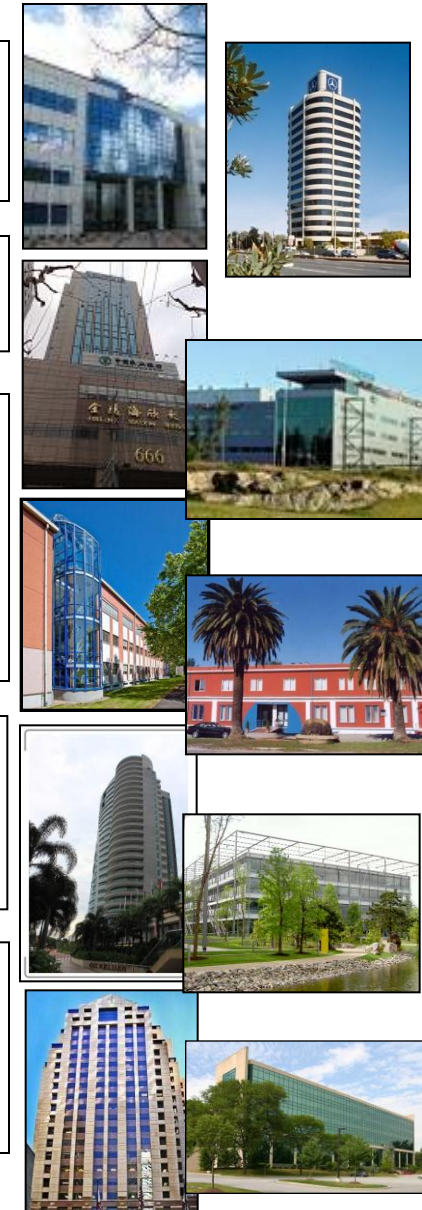
“Develop a single application capable of solving any type of planning puzzle”



With a healthy disregard for
the impossible...

Company Profile

Focus	Quintiq is a leading software company focused on providing Advanced Planning and Supply Chain optimization software
Offices	Netherlands, Australia, China, Finland, Germany, Italy Malaysia, UK and USA
Facts	<ul style="list-style-type: none"> ➤ Founded in 1997; first implementation in 2000 ➤ Every year profitable ➤ 345 employees ➤ Fastest growing advanced planning company in the world ➤ In use at 500+ sites in 76 countries worldwide
Partners	<p>Powerful international implementation partner network</p>    
Recognition	       



Market Segments

Metals & Manufacturing

Aluminum

Copper

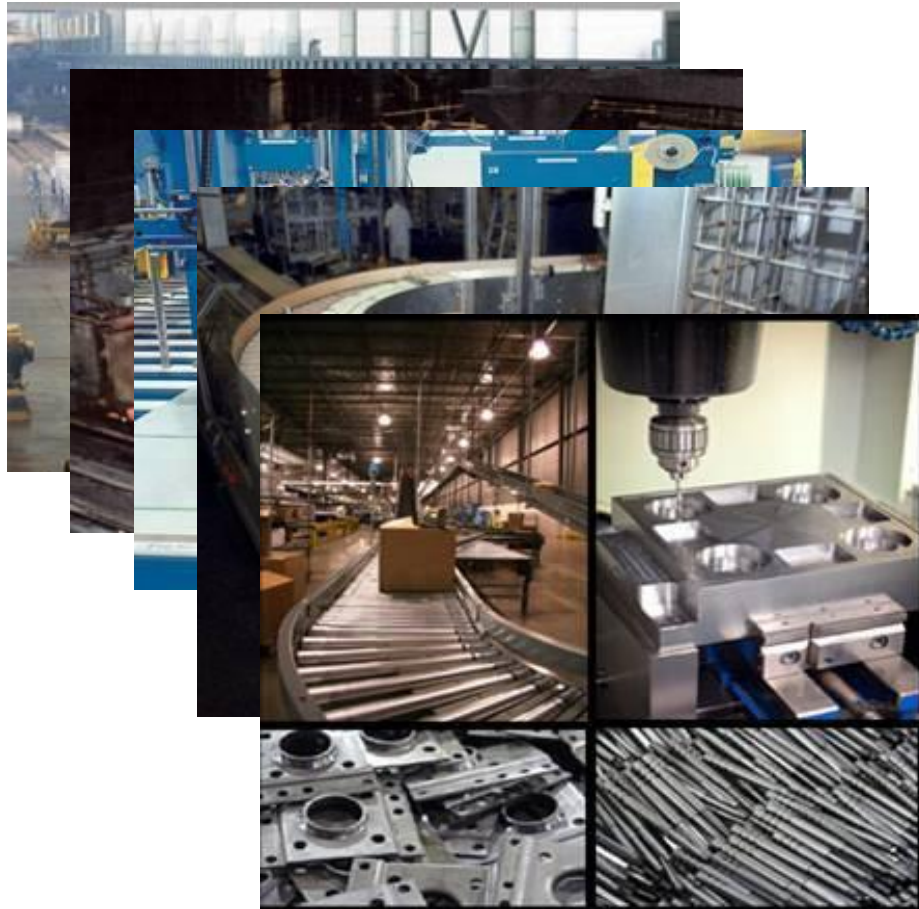
Food Processing

Manufacturing

Packaging

Service Centers

Steel



Market Segments

Logistics

Automotive

Container Logistics

Contract Logistics (3pl/4pl)

Express

Groupage

Maritime

Mining

Ports and Terminals

Postal

Rail Cargo

Retail



Market Segments

Workforce

Air Traffic Control

Aviation

Broadcasting

Field Services

Healthcare

Public Transport

Security

Rail

Workforce Optimization



Selected Quintiq Customers



Quintiq Software Vision

1. Business Model & Business logic

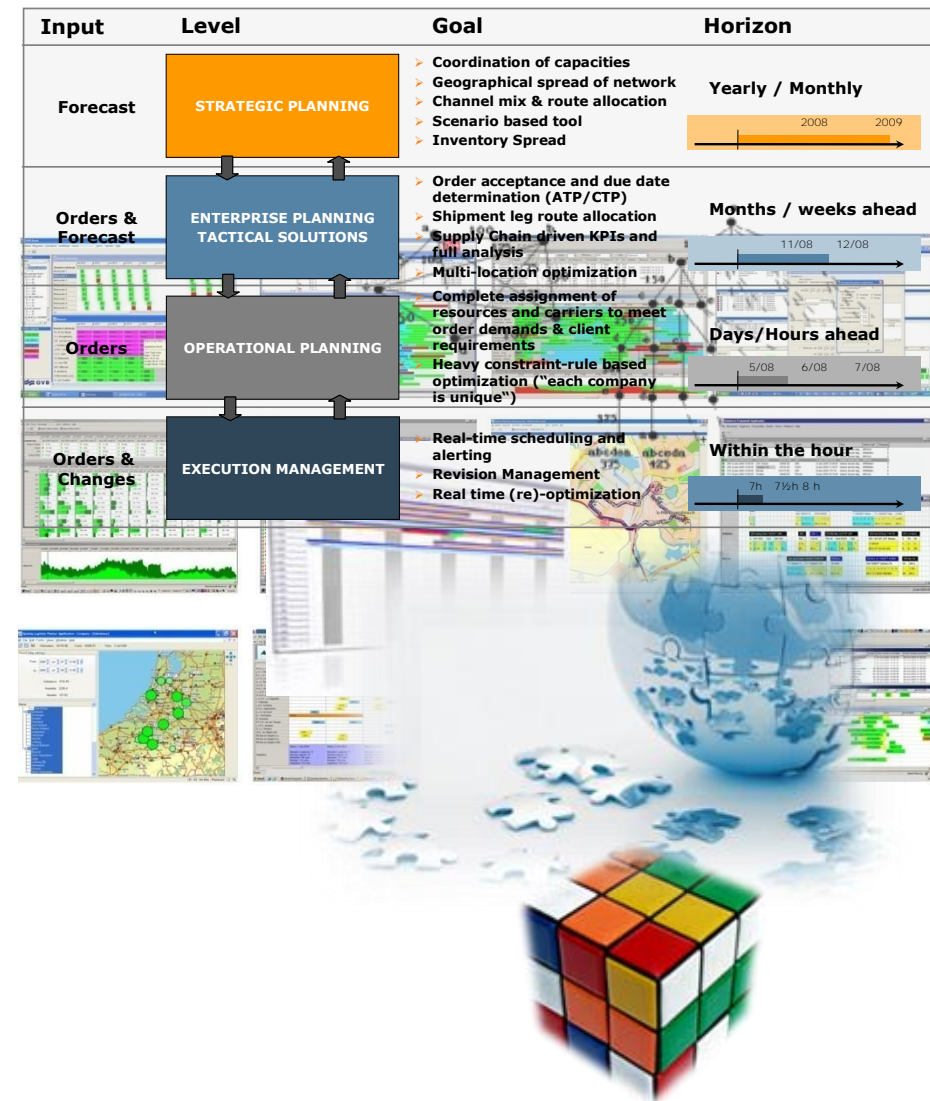
- Each company is unique
- Having a 100% fitting model is essential
- Covering all planning levels

2. Visualization & Interaction

- Individual visualization is essential to support the users in making informed decisions
- Interaction must be direct, fast and intuitive

3. Optimization

- Optimization through a selection of algorithms from the Quintiq Optimization Suite
- Taking into account all circumstances
- Developing planning proposals
- Planner defines criteria and makes the decisions
- Generate all necessary information and visualize the planning



Quintiq architecture



The **silver layer** makes each **customer's** implementation unique. It is the part of the system that will be configured together during a project to provide the final 10% of the solution.

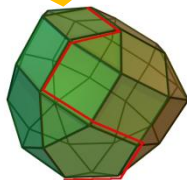
The **blue layer** represents a Quintiq Industry Solution. Quintiq has a number of different Industry-*variant* Solutions for different market segments. This represents a further 10% of the solution (market specific, but company independent logic).

The **orange layer** represents 80% or more of the solution. It is the standard Quintiq Application Suite, which consists of many planning functionalities, ranging from the Windows (and/or Web) user interface and the real-time knowledge engine where the knowledge tables and calculations can be specified, to the integrator that allows integration with other systems and optimizers that allows optimization of (parts of) the puzzle. The Quintiq Application Suite is used by *all* Quintiq customers.

Quintiq Algorithm Overview

Linear/integer programming:

maximizing goal
given linear constraints;
interface to CPLEX



Mathematical Program

Quill

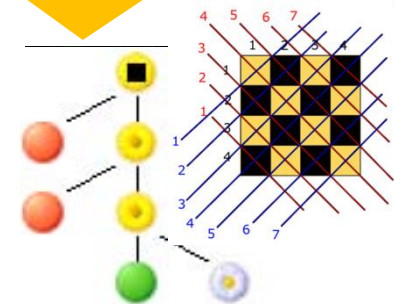
can be used to model heuristic algorithms and to combine other algorithms.



Quill

Constraint programming:

search while maintaining feasibility of (non-linear) constraints.



Constraint Logic Program

Simulated annealing:

improvement by random deletion/insertion
e.g. vehicle routing, job shop scheduling, and more.

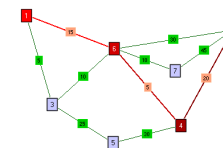


Path Optimization Algorithm

Quintiq

Graph algorithms





supported by graph object: e.g. Dijkstra shortest path algorithm



Graph Algorithms

Quintiq optimization approach

Optimized results are accomplished if the planners stay in control and decide when and how to use optimizer algorithms. Sometimes “decision support” is sufficient, sometimes an optimizer should solve the entire puzzle but often the combination of both (semi-automatic planning) leads to the best results.

Level	Organization requirements	Benefits	Description
Semi automatic planning 	<ul style="list-style-type: none"> ➤ Good Data/Rule Quality ➤ Clear Optimization Goals ➤ Good Human Planners 	<ul style="list-style-type: none"> ➤ Higher service level ➤ Include soft goals 	<ul style="list-style-type: none"> ➤ Compare different scenarios ➤ Adjust the optimization results ➤ Freeze part of the optimization results ➤ Allow re-optimization (e.g. to handle exceptions)
Automatic planning 	<ul style="list-style-type: none"> ➤ Flawless Data/Business Rules ➤ Exact Optimization Goals 	<ul style="list-style-type: none"> ➤ Cost reduction ➤ Higher utilization 	<ul style="list-style-type: none"> ➤ Make on day x planning for day x+1 (or x+2, etc.) ➤ After accepting the optimization, the planner will not re-optimize the result (only make local changes)
Decision support 	<ul style="list-style-type: none"> ➤ Good Data Quality ➤ Good Human Planners 	<ul style="list-style-type: none"> ➤ Increase span of attention per planner 	<ul style="list-style-type: none"> ➤ Global overview of status ➤ Focus on better planning ➤ Tendency towards formalization of data ➤ Pro-active instead of reactive
Manual planning 	<ul style="list-style-type: none"> ➤ Excellent planners needed ➤ Excel/ERP/TMS 	<ul style="list-style-type: none"> ➤ Plans are archived 	<ul style="list-style-type: none"> ➤ Long learning curve ➤ Constantly searching for the right information ➤ Planboard on wall ➤ No insight in global results of local decisions ➤ Stress



Discussion

