

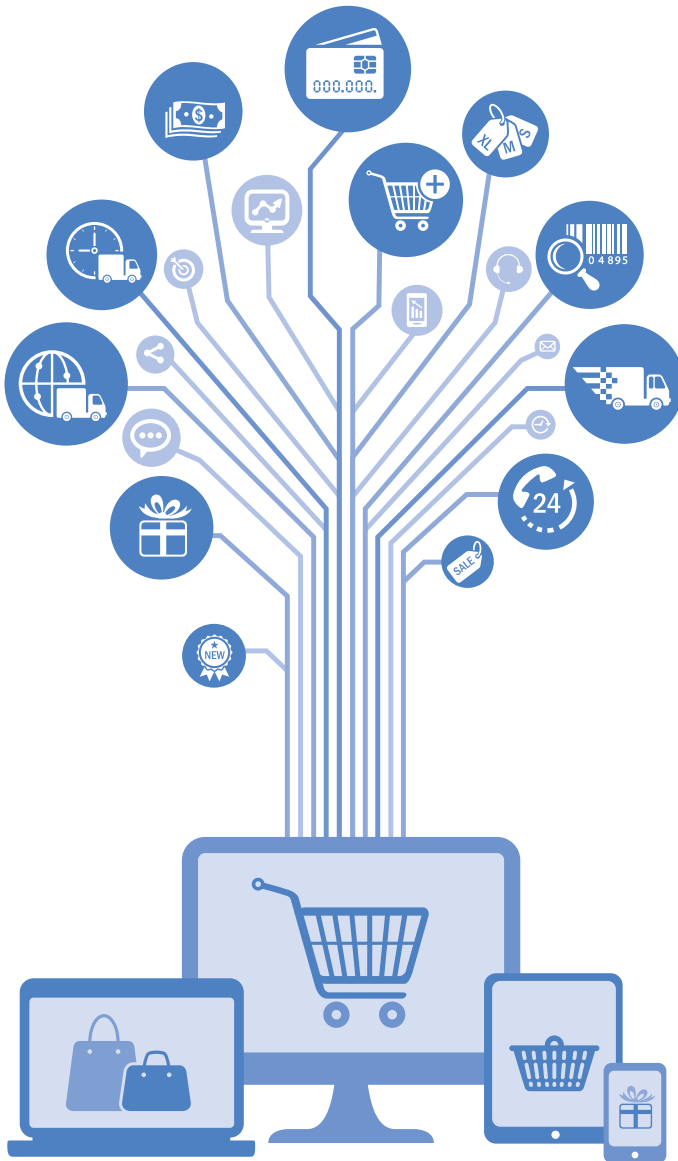


# Supply chain planning and optimization solution for retail operations

All planning levels in one integrated solution

RETAIL PLANNING





## Escalating retail complexity

In retail, challenges never seem to end. Margins are under constant pressure and consumers demand more buying options. Making products available through home delivery, pickup points, and in convenience stores adds extra layers of complexity to the supply chain, yet customers expect the same – or better – holistic experience across all touch points.

Vital information provided by big data is extremely important to retailers. It's also not enough. Retailers need flexibility to plan for and operate today's dynamic supply chain. Technology too needs to evolve to support retailers by providing greater visibility across operations, maximizing the supply chain's potential by optimizing it at operational, tactical and strategic levels.

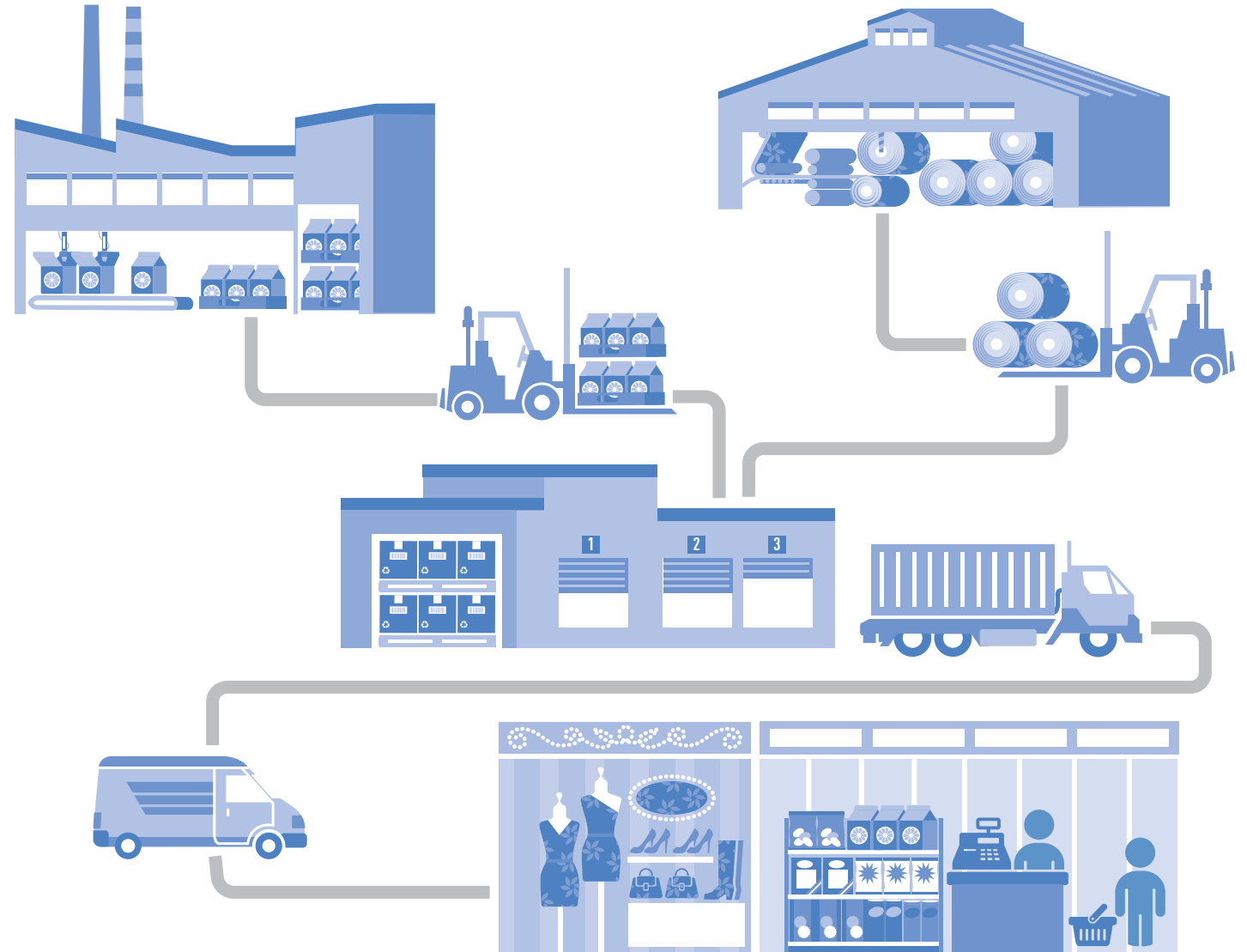
Quintiq believes that when planning operations it is critical to use planning software that exactly fits the planning puzzle. Planning fragments of the business separately, or planning with generic rules typically results in cost buffers, failures and missed potential. Quintiq solves every single planning and scheduling problem using a single standard software package. Exact business logic and rules are defined in the system to ensure a 100% operational fit. No compromise.

Record breaking optimization technology supports the planning team in finding the best answers. Quintiq's propagator continually checks for all amendments and disruptions to the plan. Each change can generate many consequences that are immediately made visible for communication or resolution.

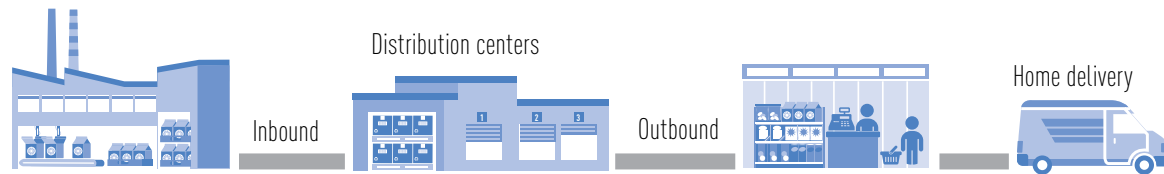
# Retail supply chain

Getting the right products to the right place at the right time. This message rings throughout your entire supply chain. From the suppliers, to the distribution centers and finally the outbound transport to the stores and home delivery. All retail puzzles come down to solving this challenge as efficiently as possible.

From manning stores and DCs with optimal resources, to outbound and inbound route planning and optimization, resource scheduling, home delivery and inventory management, your planners need to look at the bigger picture outside of their silos.



## RETAIL PLANNING



| Strategic   | <ul style="list-style-type: none"> <li>• Network design</li> <li>• Scenario comparison</li> </ul>  |   |  |   |
|-------------|--|---|--|---|
| Tactical    | <ul style="list-style-type: none"> <li>• Network optimization</li> <li>• Sourcing planning</li> <li>• Intermodal transport planning</li> <li>• Return freight logistics</li> </ul> | <ul style="list-style-type: none"> <li>• Cross-docking management</li> <li>• Lane / dock planning</li> <li>• Shift requirements planning</li> <li>• Inventory management</li> </ul>       | <ul style="list-style-type: none"> <li>• Master route planning</li> <li>• Reverse logistics/backhaul</li> <li>• Resource planning</li> <li>• Carrier management</li> </ul> | <ul style="list-style-type: none"> <li>• Tactical route design</li> <li>• Resource planning</li> <li>• Pricing strategy (+active demand shaping)</li> </ul> |
| Operational | <ul style="list-style-type: none"> <li>• Resource scheduling</li> <li>• Carrier management</li> <li>• Consolidation</li> <li>• Dock scheduling</li> </ul>                          | <ul style="list-style-type: none"> <li>• Inter-DC transport</li> <li>• (Store oriented) picking and pallet building</li> <li>• Workforce scheduling</li> <li>• Lane scheduling</li> </ul> | <ul style="list-style-type: none"> <li>• Route scheduling</li> <li>• (Preferred) Time windows</li> <li>• Compartment building</li> <li>• Dock scheduling</li> </ul>        | <ul style="list-style-type: none"> <li>• Static/dynamic route scheduling</li> <li>• Resource scheduling</li> <li>• Dynamic pricing</li> </ul>               |
| Execution   | Event management   |   |  |   |

Quintiq takes into account all planning levels of the supply chain in a single platform:

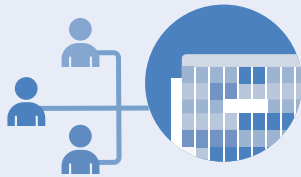
- **Strategic planning:** You get simulation and decision support to make the best possible network design decisions
- **Tactical planning:** Look ahead weeks or months to generate a store replenishment plan based on historical and forecast volumes, taking into account resources and availability, distribution network capacities and agreed customer delivery windows
- **Operational planning:** Generate effective plans on a daily basis, either fully dynamic or based on the tactical plan

Quintiq helps monitor your activities, highlight non-performing tasks and find alternative solutions when disruptions hit.

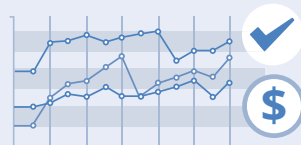
Built to integrate seamlessly with your existing systems, the Quintiq solution is able to highlight exceptions and support your planner in taking remedial action.

## Levels of planning maturity

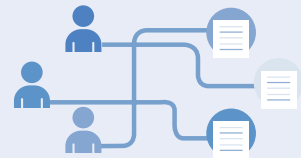
### Manual planning



### Decision support



### Semi-automatic planning



### Fully automatic planning



### Interactive automated planning



## Optimization levels

Within the retail segment we see five levels of planning maturity, each level bringing more efficient plans and less dependency on planner expertise:

- **Manual planning:** Your excellent (but irreplaceable) planner that has been around for years doing e.g. your warehouse planning in the WMS.
- **Decision support:** Better data availability and overview allows your planner to be more proactive, for instance when it comes to maintaining the right stock level.
- **Semi-automatic planning:** Low-hanging fruit of the optimization potential can now be reached. One click of the mouse gives your outbound route planner a starting solution, allowing him/her to solve the entire puzzle faster and more efficiently.
- **Fully automatic planning:** In return for flawless data, business rules and optimization goals, your plans deliver significant cost reduction, higher utilization and higher service level. However, technology alone is unable to cater for exceptions.
- **Interactive automated planning:** Contrary to popular belief, the best results are typically achieved when a human planner stays in control over an exceptional planning solution. The planner can apply soft knowledge and cater for exceptions (e.g. a supplier truck that breaks down) by re-optimizing specific parts of the plan and comparing different scenarios.

# Key benefits

## Network Planning

- Company-wide visibility into operations across all planning levels.
- Significant savings in network operation costs because of better volume-capacity balancing.

## Primary Distribution

- Optimize stock holding capacity of network by pulling required quantity of inventory to optimal locations.
- Minimize stock movement for secondary distribution and home delivery.

## Secondary Distribution

- Integrated planning – routes, network and depot operations are coordinated real-time to synchronize the flow of activities and push the buffers out of the organization.
- Improved utilization of capacity through efficient assigning of vehicles and personnel on a daily, weekly and monthly basis.
- Reduced labor costs – optimally align workforce supply with demand.

## Home Delivery

- Significant cost savings – Benefit from efficient resource utilization and increased productivity.
- Exceptional customer service levels and service quality – Attain a strong competitive position.
- Service flexibility – Easily and quickly offer new or tailored services while taking advantage of existing resources.
- Fewer tours – Reduced by realtime dispatch and the elimination of ad-hoc tours.
- Reduced fuel consumption and carbon footprint through efficient tour generation, integration with telematics, and improved first-time delivery rates.
- Exceptional and profitable delivery performance – Choose the most profitable deliveries and confidently stand behind flexible delivery schedules.

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“Excellent service comes from always having the right number of partners in the right place in branches. With the Quintiq system, we expect to support the branch managers in realizing increased efficiencies in the deploying partners, so customers will continue to enjoy the service they expect.” – Andrew Wrigley, Project Manager, Waitrose

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# Key planning capabilities

## For Primary Distribution

- How to build and consolidate shipping containers
- Multi-modal - decide when to use air, sea, road, rail
- When to bring into the network and where to hold stock.

## For Secondary Distribution

- Building waves to stores, prioritizing inventory
- Managing bottlenecks such as cross docks and loading docks
- Efficient use of human resources
- Full loads and multi-drops
- Backhaul and returns.

## Home Delivery

- Building an efficient operation with consumer diary promise
- Using intelligent addresses for optimal planning of delivery times
- Planning around driver skills and needs.

## In-store Human Resources

- Get the right level of budgeted hours for store demands
- Optimal assignment of people for tasks
- Balance operation cost with customer service.

# Quintiq advanced technology

Because Quintiq technology is a business logic driven planning platform, any business rule or constraint can be easily defined in the system. This means you can fully model your business processes to determine the best route to reach your business goals.

The Quintiq technological advantage lies in powerful engines and optimizers that master your company's business logic, accurately providing a variety of opportunities to control and optimize all your business processes.

Fast implementation sets Quintiq apart from its competition. Quintiq has developed a standard project methodology: the Quintiq Project Life Cycle, or QPLC. This methodology enables you to easily and quickly deploy our advanced technology. A fully serviceable and customized solution can be delivered and implemented in a short time, with many users experiencing a payback time of just 6 to 18 months.



## About Quintiq

Quintiq's revolutionary supply chain planning and optimization (SCP&O) platform enables enterprises to improve efficiency at every stage of the supply chain journey. It powers end-to-end planning and optimization of personnel, resources, and processes in a single planning environment, across all planning horizons. Many of the world's largest and most successful enterprises rely on Quintiq to achieve their business goals, strengthen their competitive advantage and create new revenue streams.

Established in 1997 and growing rapidly, Quintiq has a global presence with dual headquarters in the Netherlands and the USA, a global development center in Malaysia and offices around the world. Quintiq's software is in use in over 80 countries worldwide.



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