KINAXIS® | 4FLOW
Your supply chain solution

Your guide to optimizing transportation in Kinaxis Maestro™

Shaping the future of supply chain

Contents

Transportation optimization: the key to greater supply chain efficiency and cost savings

With transportation accounting for an average of 60%[1] of logistics costs globally, savings in this area can have a significant impact on supply chain costs – and a business's bottom line.

Transportation costs are related to factors like fuel prices, labor cost and government regulations on emissions. Efficient transportation that maximizes utilization of resources empowers businesses to reduce costs and improve their supply chains' performance.

Yet implementing transportation optimization processes is easier said than done. Increasing supply chain complexity and the high number of relevant variables, like weather conditions, increasing fuel prices, and capacity and labor shortages, are significant challenges.

Users of Kinaxis Maestro™ already know the benefits that come with exchanging supply chain data across functions – greater process efficiency, improved visibility and cost reduction while maintaining peak performance and quality.

This e-book introduces you to the advantages of taking a concurrent approach to transportation optimization. By integrating transportation optimization earlier in supply chain processes, specifically in the material planning phase, businesses can expect to improve efficiency and achieve cost savings in their supply chain.

1 Global Logistics Costs by Function and Mode 2018

How silos block visibility and create inefficiencies in material and transportation planning

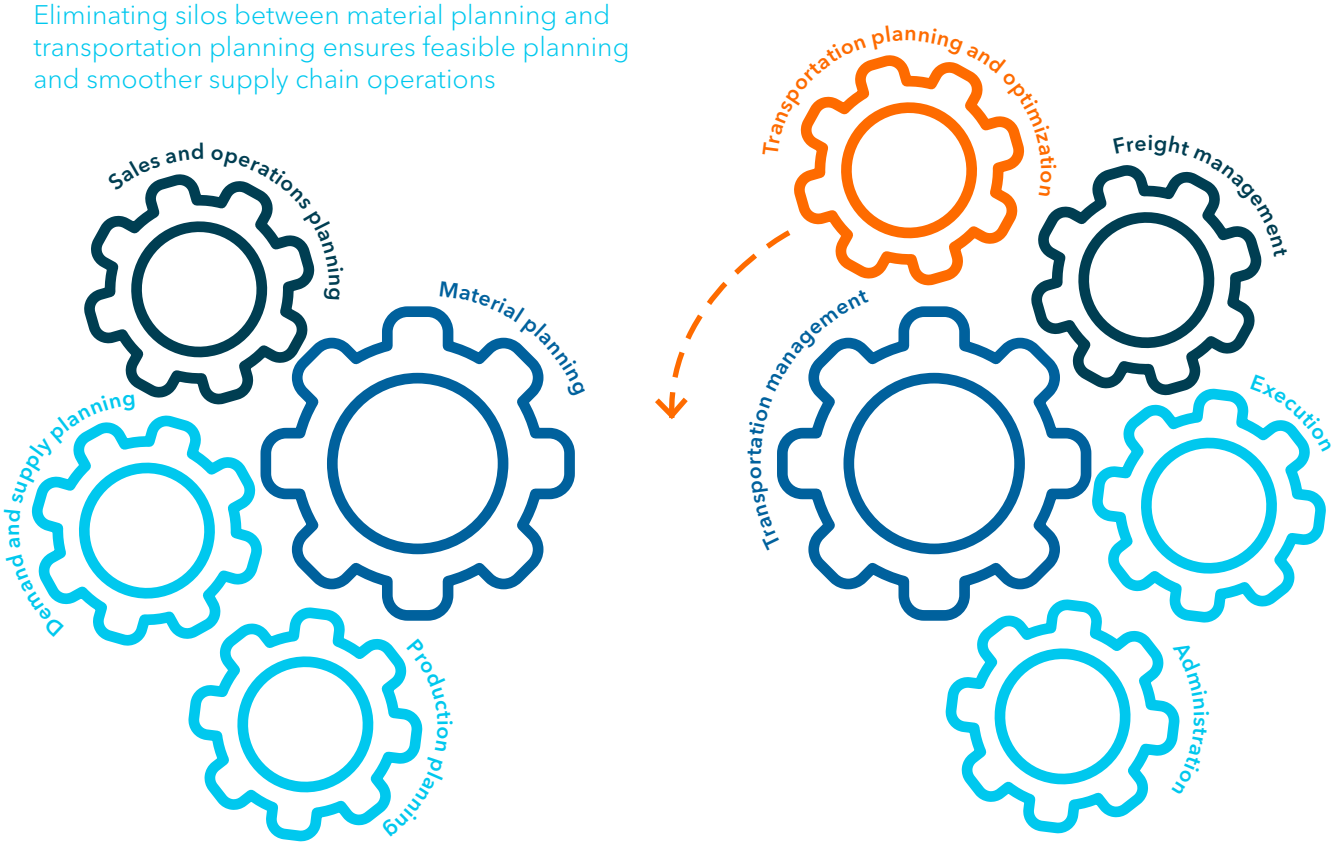
Often, the functions of material planning and transportation planning and execution are performed in silos. These two processes are critical in supply chain, yet neither one has visibility over their impact on the other:

A **material planner** has no transparency over the impact on transportation execution. The products and material deliveries are planned without taking real-world transportation constraints into account, such as truck capacities, schedules or incompatibilities. This can translate into a non-actionable plan and require significant last-minute changes before transportation execution.

A **transportation planner** has no transparency on the impact of transportation on inventory level. Transportation is executed without considering material availability, inventory level or storage capacity. This can create further delays and require additional transportation arrangements. For instance, if material is not ready at the plant.

This gap creates inefficiencies and higher transportation costs that are due to factors such as last-minute changes to plans, low truck utilization and overall planning inefficiency.

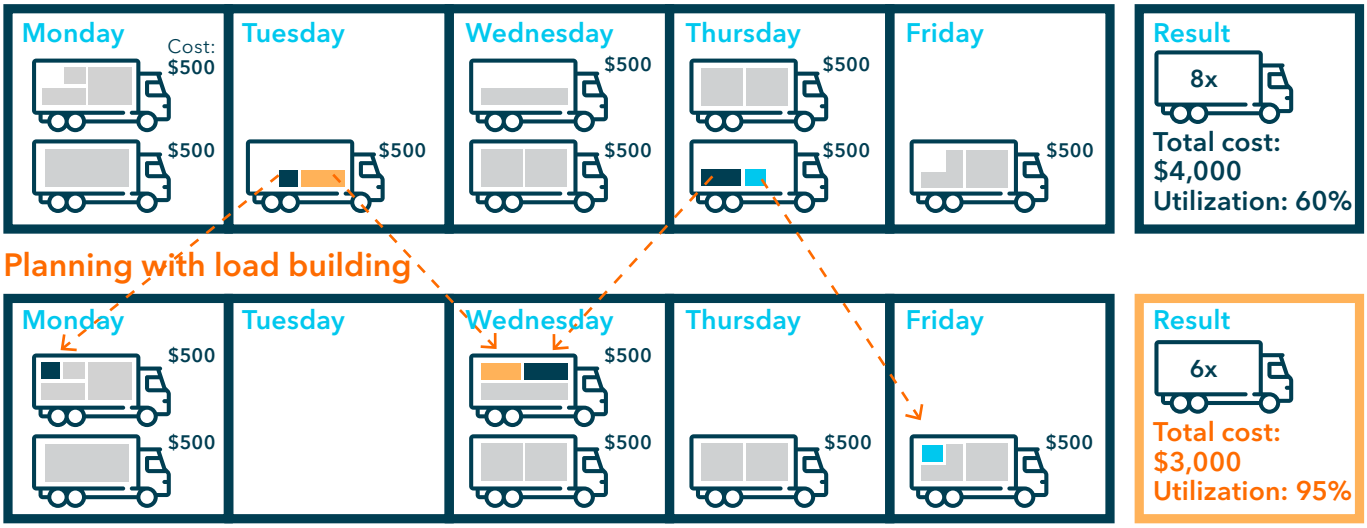
Eliminating silos between material planning and transportation planning ensures feasible planning and smoother supply chain operations



The question becomes: how can we bridge this gap? 4flow and Kinaxis answer this question by bringing transportation optimization and load-building capabilities directly into S&OP processes.

What are the benefits of load optimization in transportation planning?

Traditional planning



Integrating load optimization into transportation planning lets businesses consolidate orders into more efficient shipments and reduce transportation costs

Within transportation, load optimization is an important lever for a resilient and cost-efficient supply chain. Benefits of this transportation optimization measure include:

Cost reduction

Transportation can account for a significant portion of total logistics costs. Load building reduces costs by finding the most efficient schedule and means of transportation with a focus on maximizing utilization. In turn, higher utilization means fewer trucks are needed – which further helps reduce transportation costs. Depending on the industry, transportation makes up 30-60% of overall costs, so savings in this area can have a great impact on revenue.

Maximized utilization

Many trucks travel at less than full capacity. By bundling orders in fewer shipments, load optimization maximizes utilization of transportation assets. Transportation optimization boosts productivity by ensuring that trucks are used to their full capacity, reducing idle time and improving overall transportation efficiency.

Improved sustainability

Optimizing the number of vehicles as well as loads and their weight reduces the number of trips and increases capacity utilization, which directly reduces carbon emissions.

Increased supply chain and planning efficiency

Transportation planning and optimization support early communication across functions to reduce inefficiencies related to unrealistic planning.

Load optimization in transportation planning ensures that the right products are delivered at the right time, in the right quantities and at the right cost – so businesses can meet customer expectations and maintain optimal inventory levels. Efficient transportation planning helps companies reduce costs, minimize waste, improve customer satisfaction and gain a competitive advantage in the marketplace.

What is the goal of transportation planning?

Integrate real-world transportation factors

> Automatically consider transportation constraints in your planning
e.g., product incompatibilities, capacities or schedules

Create an optimal shipment plan

> Consolidate your shipments based on transportation factors
> Prepone or postpone call-offs and maximize truck utilization

Use an actionable, reliable plan for greater cost savings

> Reduce transportation costs by consolidating orders and maximizing utilization
> Make sure the right products are delivered at the right time, in the right quantities and at the lowest cost

Overall, transportation optimization is essential to improving supply chain efficiency, reducing costs and improving customer satisfaction.

How does transportation planning fit into supply chain processes?

Usually, transportation planning, load optimization and transportation execution take place after S&OP processes. But what if you could optimize and plan loads earlier in supply chain processes – before scheduling agreements are set? At this point, the demand and supply plan is more flexible and can be adapted to real-world constraints.

The flexibility gained from earlier load optimization unlocks important benefits. Planners avoid expensive last-minute changes in execution. Back-and-forth communication to adapt the transportation plan between suppliers and carriers is minimized.

The Transportation Load Optimizer (TLO), an embedded Maestro™ application, empowers planners to automatically and simultaneously consider transportation and S&OP constraints, ensuring optimal planning. The results are feasible and cost-efficient. Materials also arrive on time.

What is the difference between the Kinaxis TLO by 4flow and a transportation management system (TMS)?

What is a transportation management system (TMS)?

A transportation management system or TMS is a software that supports the end-to-end movement of both inbound and outbound goods. Functions could include freight management, order execution, shipment tracking, communication with carriers and documentation of these processes. By providing visibility over daily operations, a TMS can also help businesses ensure their shipments are delivered on time and comply with relevant regulations.

Key functions of a TMS

Freight management

- Carrier rates
- Contract management
- Order management
- Multimodal transportation

Administration

- Billing
- Payment
- Settlement
- Auditing

Execution

- Booking
- Tracking
- Real-time visibility
- Communication

What is the TLO?

The Transportation Load Optimizer (TLO) connects transportation planning with material planning to optimize transportation plans with respect to their effect on inventory. Transportation factors are considered in an early stage during the material planning. In this way, call-offs are planned and optimized given real-world transportation parameters, the bill of materials (BOM) and inventory levels. This approach ensures more reliable and actionable planning.

Key functions of the TLO

Connect transportation and material planning

- Optimize material call-offs considering transportation constraints
- Eliminate silos for greater planning efficiency
- Get total transparency and review the optimized results

Optimize shipments

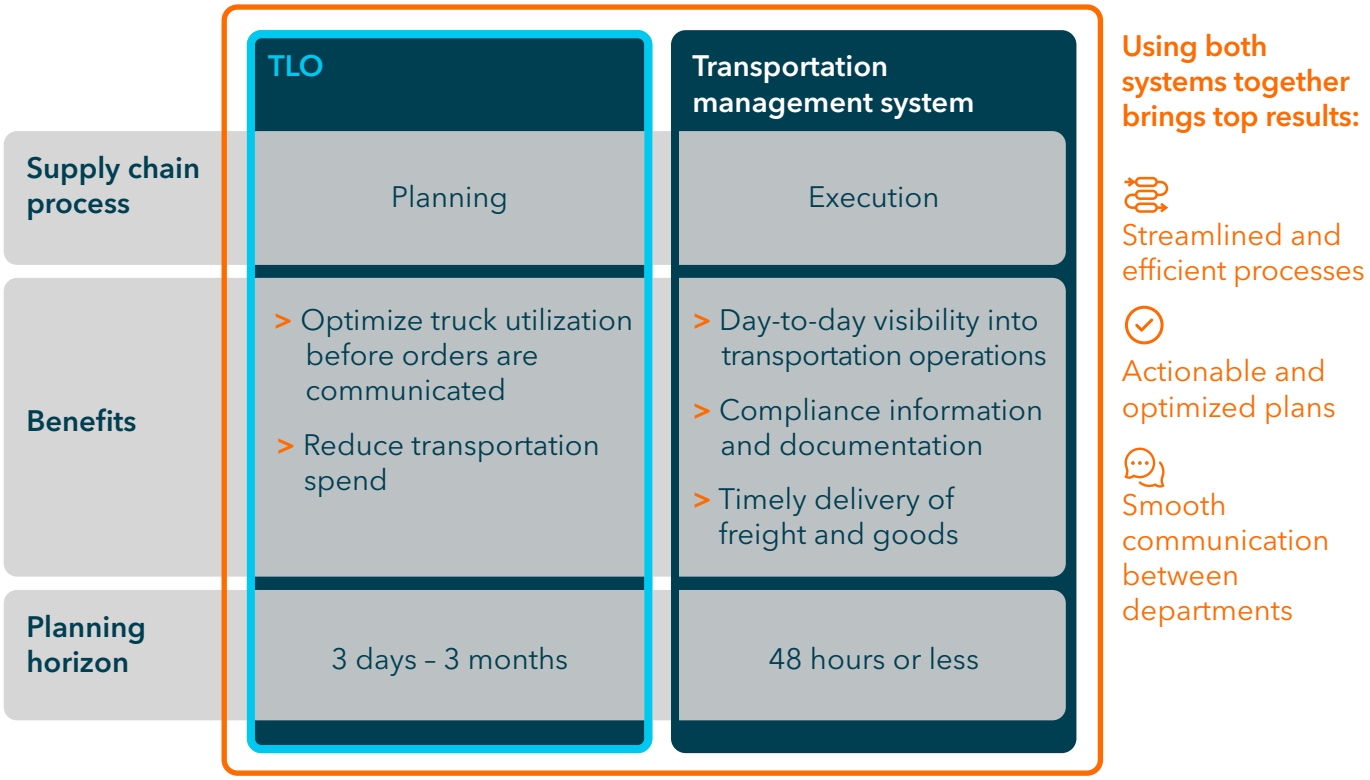
- Pre- and postpone shipments to create fuller loads while maintaining optimal inventory levels
- Get actionable planning results based on real-world parameters
- Reduce demand for transportation

Review and track your results

- Compare most relevant KPIs before and after optimization
- Track and evaluate metrics like CO_2 emissions and cost savings
- Get full reports on improvement

Differences between the TLO and a TMS

Integrating transportation planning and optimization earlier in supply chain processes with the TLO does not replace a TMS. Instead, early transportation planning can enhance the execution and use of a TMS system for even greater supply chain resilience.



The TLO and transportation management systems (TMS) have different functionalities – meaning businesses can use either kind of software individually or both together for even smoother operations

A TMS and the TLO have different uses and operate with different planning horizons. A TMS is an execution software which typically operates in a very short window of time, the next 24 to 48 hours. The TLO is a planning software with an optimization horizon that ranges from 3 days to 3 months, depending on your requirements.

The benefits of these two systems differ as well. A TMS enhances day-to-day visibility, provides compliance and documentation and supports timely delivery of goods. On the other hand, the TLO focuses on load optimization capabilities. It aims to maximize utilization, reduce transportation costs and improve planning efficiency.

Optimization capability is another critical difference. A TMS can only optimize known transportation factors. A TMS receives the orders from the MRP run just a few days before the actual delivery. There is no visibility on the impact of the inventory level. For instance, the material availability is not visible to planners, so it is not possible to know if there are any conflicts with the execution itself.

The TLO adds an automatic step to S&OP processes and optimizes demand and supply data considering transportation constraints. It allows simultaneous consideration and optimization of transportation factors and S&OP constraints.

Conclusion

With the power of transportation planning added to Maestro™ with the TLO, demand and supply planning can be optimized with respect to transportation from the start. As a result, execution runs more smoothly, as planners do not need to adjust the orders' deliveries to fit operational constraints.

This full visibility also gives material planners an understanding of the impact on transportation execution, ensuring an actionable plan. At the same time, transportation planners are aware of inventory levels and material availability. This streamlined process eliminates silos and allows businesses to have full transparency and greater planning efficiency.

Greater flexibility comes from earlier planning and optimization. In addition, businesses can share planning information with the carrier base prior to load tendering. This can help businesses overcome the capacity constraints currently facing the transportation market and even help drive rates down thanks to an advanced preview.

Adding transportation and load optimization in the early stage of material planning is a key lever to eliminate silos and ensure both efficient and reliable planning. Armed with an actionable plan, businesses gain resilience and maintain peak performance, enabling them to overcome supply chain complexity and stay competitive in today's challenging market.

As an embedded, certified application, the TLO brings the power of transportation planning to Maestro™ – helping businesses gain resilience and overcome supply chain complexity

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