

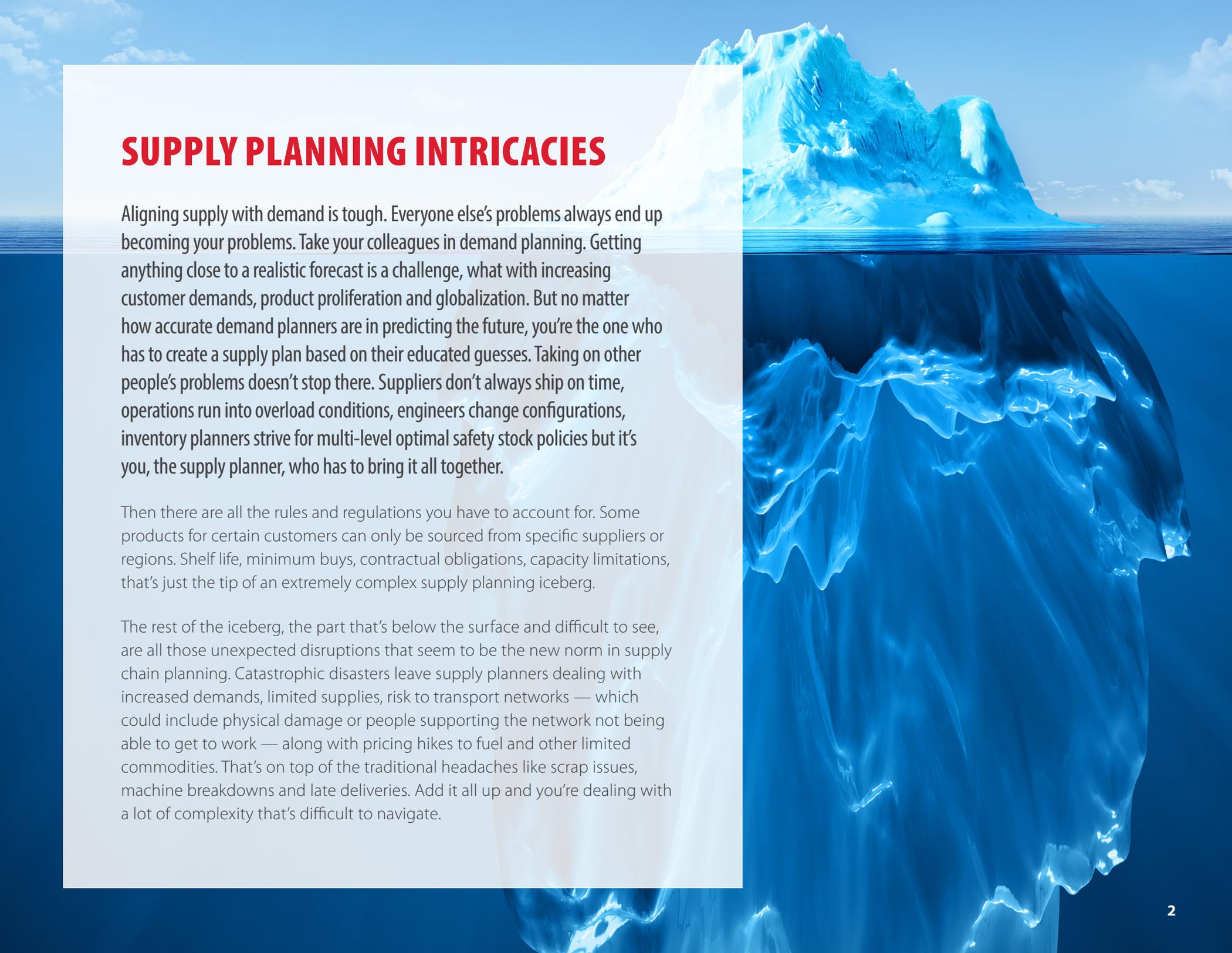
A person wearing a red shirt is shown from the side, holding a smartphone in their right hand. They are sitting at a desk with a laptop open in front of them. The background is softly blurred, suggesting an office or home workspace. The lighting is warm, with a bright light source creating a lens flare effect in the upper left corner.

kinaxis[®]

FOUR MISSION-CRITICAL CAPABILITIES

for navigating supply planning complexities

SUPPLY PLANNING INTRICACIES

A large iceberg floating in the ocean, with the water level clearly visible. The tip of the iceberg is above the surface, while the vast majority of the iceberg is submerged below the water. The water is a deep blue, and the sky is a lighter blue with some clouds. The iceberg is white and blue, with some internal textures visible.

Aligning supply with demand is tough. Everyone else's problems always end up becoming your problems. Take your colleagues in demand planning. Getting anything close to a realistic forecast is a challenge, what with increasing customer demands, product proliferation and globalization. But no matter how accurate demand planners are in predicting the future, you're the one who has to create a supply plan based on their educated guesses. Taking on other people's problems doesn't stop there. Suppliers don't always ship on time, operations run into overload conditions, engineers change configurations, inventory planners strive for multi-level optimal safety stock policies but it's you, the supply planner, who has to bring it all together.

Then there are all the rules and regulations you have to account for. Some products for certain customers can only be sourced from specific suppliers or regions. Shelf life, minimum buys, contractual obligations, capacity limitations, that's just the tip of an extremely complex supply planning iceberg.

The rest of the iceberg, the part that's below the surface and difficult to see, are all those unexpected disruptions that seem to be the new norm in supply chain planning. Catastrophic disasters leave supply planners dealing with increased demands, limited supplies, risk to transport networks — which could include physical damage or people supporting the network not being able to get to work — along with pricing hikes to fuel and other limited commodities. That's on top of the traditional headaches like scrap issues, machine breakdowns and late deliveries. Add it all up and you're dealing with a lot of complexity that's difficult to navigate.



FOUR MISSION-CRITICAL CAPABILITIES FOR NAVIGATING SUPPLY PLANNING COMPLEXITIES

Similar to nerves sending signals to the brain, you need to connect supply planning to the rest of the supply chain community for everything to function properly. Effective and efficient supply planning in today's global landscape depends on four critical capabilities that are crucial for planning supply and keeping a pulse on your network so you can preemptively respond to changes and events.

Instant multi-level, multi-site BOM explosion

Things happen quickly in your supply chain, at every level and location, across multiple borders affecting large communities of people. It's imperative you can link your entire network together from the customer down through your distribution centers, your factories and suppliers. Linking your supply chain ensures you'll be able to capture the impact of any change at any node of the network and reflect it upstream and downstream. With real multi-level, multi-site bill of material (BOM) explosions, demand cascades down through the BOM in seconds, recalculating demand and

supply across the network. Make sure your cascading demand also considers planning variables like order policies, lead times, safety stock, current inventories and open and in-transit orders so you'll have instant demand and supply balancing at every level. The result will be significantly reduced planning cycle times.

Analytic horsepower

It's not enough to model the part-site relationships in your network. You need to include the behavior of the supply chain along with the governing rules and regulations for true, accurate end-to-end supply chain visibility. Failure to do so could lead to shortages, inventories in the wrong place, missed revenue opportunities or breaking contractual obligations. The list of rules and regulations, particularly in industries like pharmaceutical or aerospace, often reads like the constitution but you need to incorporate them into your BOM explosions to achieve accurate demand and supply balancing. Here are a few examples:

PART SUBSTITUTION – There are times when primary components aren't available. If you can use an alternative component to maintain delivery schedules or reduce inventories, make sure you can define how and when you can use part substitutions.

ALTERNATE SOURCING – Suppliers don't always deliver on time. If your primary source can't deliver, you may need to work with another supplier to fulfill customer commitments. However, those alternate suppliers may be more expensive or not yet certified. Like substitutions, it's valuable to capture the rules associated with alternate sources and suppliers as options to maintaining your own promises.



CONSTRAINTS – There are limits to your materials, labor and machine capabilities. Making a plan that doesn't consider these limitations is no more than a wish. Simultaneously considering constraints during your BOM explosions is key to getting a realistic supply plan.

ATTRIBUTE BASED PLANNING (ABP) – Attributes are like following the rules of the road while driving. For example, in some countries you drive on the right side, but in others it's the left side. In your supply chain, some customers may have approved supplier X but not supplier Y. A customer may require lots be tested no more than nine months ago or be manufactured with a specific technology. You may also need to consider the expiry dates on products. Accurately capturing attributes of your supply chain and including them in your planning calculations will ensure you avoid significant hits to your margin and reputation.

MULTI-LEVEL SEARCH (MLS) – Finding the optimal path to ensuring the best customer delivery isn't always obvious. MLS iteratively evaluates different supply paths through multiple levels in the product structure to choose the one that provides the best availability. The challenge is being able to run these iterations in a timely manner. You need some significant analytic horsepower, but the result is ecstatic customers.

This is only a small sample of the analytic horsepower required for accurate supply planning, but it's easy to see that even in the best of times supply planning is intimidating. Effectively and efficiently managing these analytic complexities can turn your supply chain into a competitive advantage.

Automated Intelligence

Seeing two words with the acronym “AI” may get you automatically thinking about the future. However, there are uses for artificial intelligence and machine learning in supply chain planning that you can implement today. Most current, practical examples focus on automated intelligence. Best-in-class supply planning requires you to automate certain decisions, while still being aware when the system makes them.

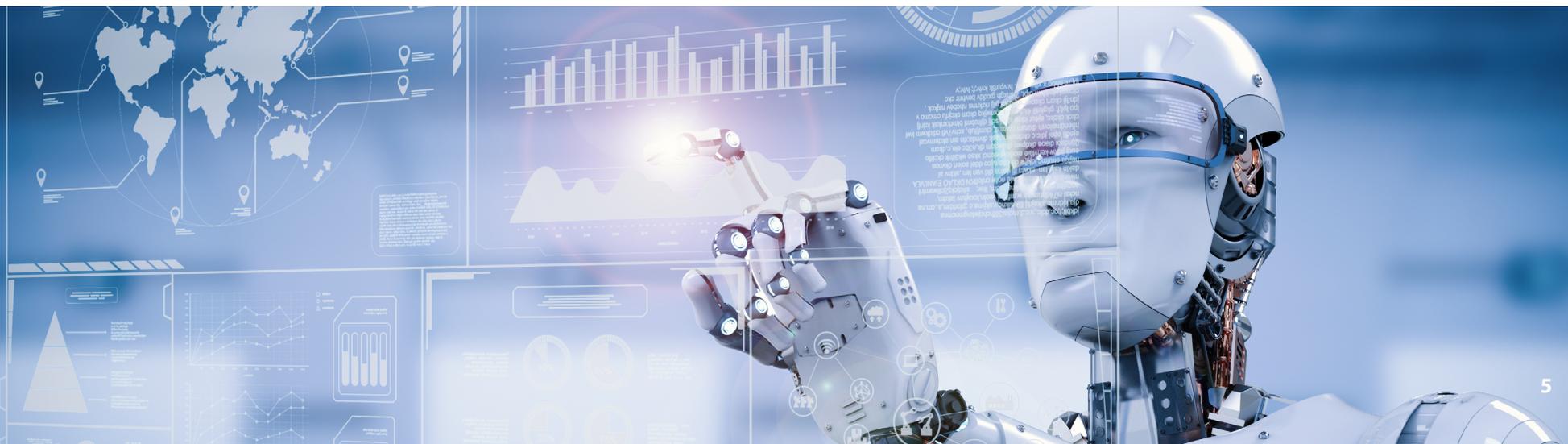
For example, you may have defined an expiry attribute for a product. In a situation where inventory will expire you’ll want the option to tell your planning system to automatically plan additional supply to cover the loss due to expiration. You’ll also want the system to alert you in advance that you’ll have expired materials unless you do something about it.

In this case, you’re automating when to invoke the analytics in your planning engine. You can automate decisions around when to use an alternate source or parts. If you’re modeling constraints, you can automate a decision to prebuild inventory to avoid work center overloads.

Automated intelligence also includes the ability to spot anomalies or trends. With new products, changing demands and new supplier relationships, data is always moving and changing. There’s a good chance data integrity issues exist. Automatically prioritizing data issues and alerting you on which problems to solve first will ensure a solid foundation for your supply plans. Other planning policies like lead times may actually be trending away from the values you’re using for planning. In these situations, automated intelligence can flag the occurrence before it causes too much disruption.

Supply planning has a lot of moving parts. Automating decision support helps you focus on planning strategies and navigate during times when things don’t go as planned.

As Brian Tessier, VP Global Supply Chain, Schneider Electric, explains of his company’s foray into artificial intelligence, “We found very quickly we had some very poor assumptions about lead times, both from suppliers and interplant shipments from within our supply chain. Given the number of transactions we do, the complexity of our product portfolio and the number of entities involved, there’s no way we would have found this any other way.”¹



Anytime what-if

Supply planners have questions — lots of them. Getting answers quickly means you can keep your supply planning engine running as smooth as a finely tuned race car. The bulk of supply planning questions revolve around two primary situations, planning and responding.

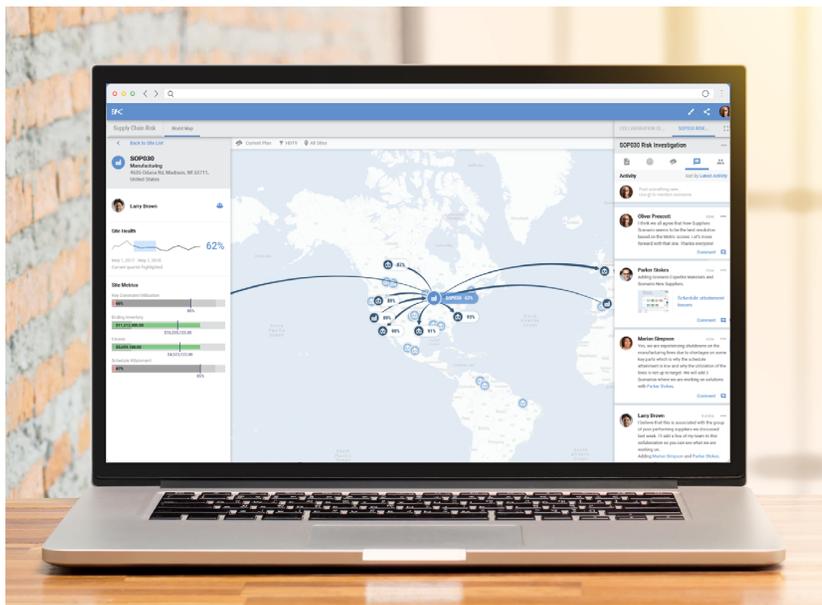
In either situation, it's valuable to be able to evaluate before you execute. During planning, you may want to test supply plans and in cases where you can't meet on-time delivery targets on the first pass, you may want to test alternatives against other key performance metrics like margin, inventory turns and revenue. You could also evaluate a change to order policies or other planning parameters like safety stock to ensure the change will have the desired effect on your planning strategies and goals. By evaluating before you execute, you're preempting excess and shortage conditions as well as delays and expedites.

The best supply plans always get hit with change. Anything from an unexpected late delivery or quality issue to a natural disaster that physically destroys your supply chain. Many times the right answer to handling supply planning disruptions isn't easy to identify. What-if capabilities are required to collaboratively test for the right decisions. In most if not all cases, it needs to happen fast. The longer you let the fire burn, the more damage there will be. Anytime what-if decision support has to be easy and quick to keep your supply plans on the right track.



RAPIDRESPONSE MAKES SUPPLY PLANNING EASY

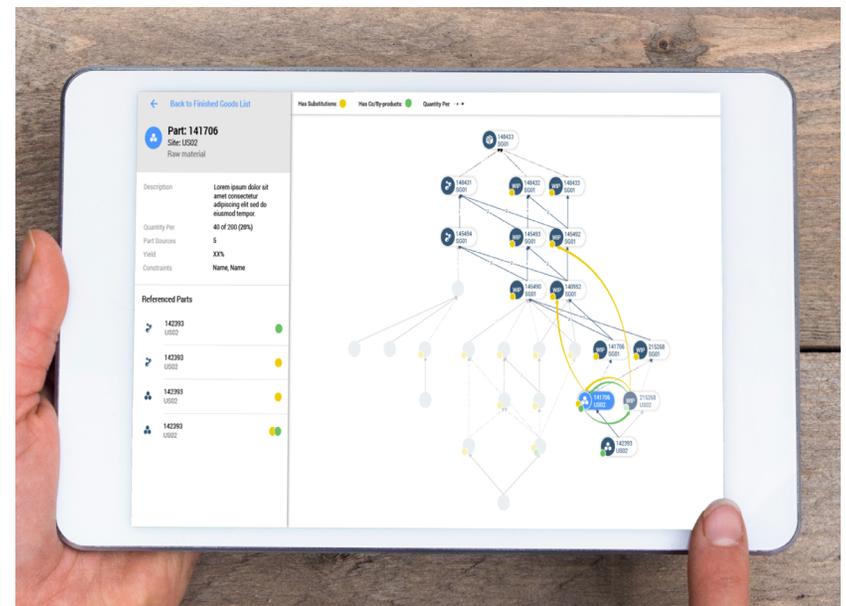
With Kinaxis® RapidResponse® gain immediate visibility into the alignment of your supply and demand plans while considering key material and capacity constraints and the rules and regulations that govern them. Resolving conflicts is fast, easy and effective. RapidResponse lets you plan concurrently across business functions so you can set supply plans and course-correct as required.



Geo mapping gives you a complete picture of your supply chain's health at a glance and lets you drill down to details.

Instant multi-level, multi-site BOM explosion

Pull data into RapidResponse from any number of sites, sources and formats. Then link your entire network from the customer down through your factories, suppliers and distribution centers.



See changes as soon as they happen with BOM analysis, which instantly recalculates demand and supply across the network.

With all your data and locations in one place, you'll immediately see the impact of any demand and/or supply changes across the entire network.

RapidResponse is a single platform for all your data and supply chain planning analytics, letting you run multiple what-if scenarios faster than the human brain can have multiple thoughts. If you respond to a demand increase within RapidResponse, all at once it will consider material availability, order policies, capacity constraints, allocation rules, attributes, sourcing logic and a host of other supply considerations.

Using a single platform means increased planning efficiency and improved performance metrics. RapidResponse gives you the ability to model the behavior of your end-to-end supply chain and invoke planning rules as easily as turning on a light switch.



“Kinaxis RapidResponse provides the data in a way that allows you to **accurately determine and anticipate issues** in the supply chain.”

— Supply Planning, Fortune 500 Telecommunications Equipment Company

“The connection of planning centres and people on a single platform with transparency in real-time is a great value add. It is a **foundational platform** that enables us to break down silos and **connect the supply chain and related functions end-to-end.**”

— Zoltan Pekar, Head of Supply Chain, Roland DG Corporation

Manage expiry or any other attribute using the intuitive planning sheet.

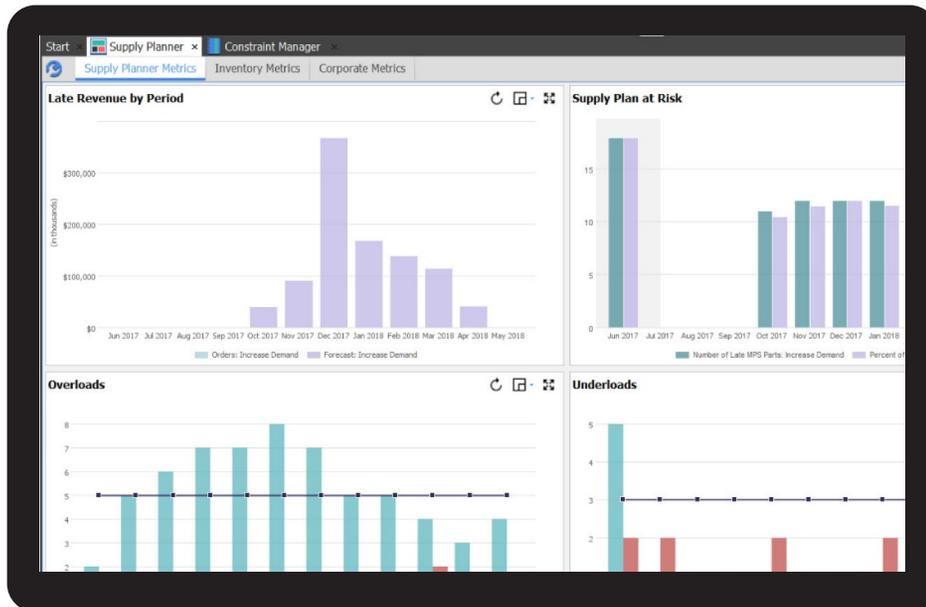


An easy-to-understand view of your aggregate supply plan quickly highlights constraints, so you can get to work on mitigating them faster.

Analytic horsepower

RapidResponse includes a library of out-of-the-box views including workbooks, scorecards and dashboards, making the user experience easy and intuitive. For supply chain planning, they include a supply planning dashboard with standard measures such as revenue, margin, inventory value, on-time delivery and constraint utilization, plus metrics associated specifically with supply planning. These metrics include:

- ▶ **Revenue missing period:** Summary of the value, by period, of revenue expected to be late
- ▶ **Supply plan at risk:** Summary of the count of parts, by period, where the supply plan is unobtainable due to material or capacity constraints
- ▶ **Overloads and underloads:** Count of overloaded or underloaded constraints, by period, broken up into key constraints and other constraints
- ▶ **High and low inventory violations:** Summary of the value, by period, of inventory that exceeds or is below target levels set in the annual plan
- ▶ **Excess and obsolete value:** A time-phased measurement of the excess or obsolete value over a horizon



See key metrics at-a-glance using the supply planning dashboard.

| Supply Chain Performance Categories | Occurrences | | | Trade Prom |
|-------------------------------------|-------------------|----------------|--------|------------|
| | Trade Promo trial | S&OP Candidate | Change | |
| Orders at Risk | 1,282 | 1,115 | +167 ↑ | \$326,5 |
| Orders at Risk this Quarter | 116 | 3 | +113 ↑ | \$25, |
| Orders at Risk next Quarter | 34 | | +34 ↑ | \$9, |
| Orders at Risk future Quarters | 1,132 | 1,112 | +20 ↑ | \$292, |
| Orders at Risk this Week | | | | |
| Orders at Risk this Month | 55 | 1 | +54 ↑ | \$10, |
| Excess and Obsolete | | | | |
| Excess as of Today | 58 | 71 | -13 ↓ | \$9, |
| Excess through End of Horizon | 1 | 26 | -25 ↓ | \$1, |
| Obsolete for All Part Classes | | | | |
| Obsolete for A Class only | | | | |
| Obsolete for B Class only | | | | |

Spot opportunities or threats using the risk and opportunity assessment workbook.



Automated intelligence

RapidResponse's configurable planning logic lets you automate the decision process, including:

- ▶ Using an alternate part, but only if there's inventory for the substitute part, do not generate new planned orders for the alternate
- ▶ Prebuilding if a work center is overloaded, but do not prebuild more than a week
- ▶ Using fair share logic to distribute limited supply if supply is on allocation

Plus with user alerts, you'll know if and when human intervention is required to achieve your desired results, so you can run anytime what-if analysis to evaluate your options and choose the one that best meets your needs.

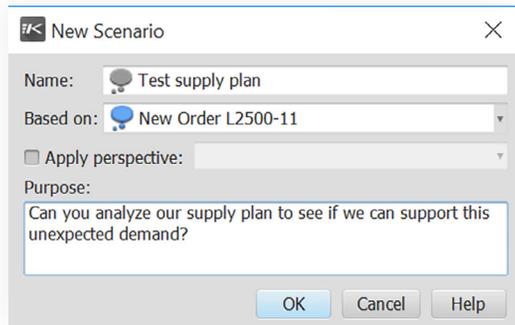
Anytime what-if

With RapidResponse, anyone, anywhere, anytime can run an unlimited number of scenarios, without system degradation. Each scenario is a virtual copy of your entire supply chain network but only takes seconds to create. You can share those scenarios just as easily, allowing global collaboration so you can understand tradeoffs and compromises, making better decisions, faster.

Scenarios enable you to:

- ▶ Manage the process of analyzing change
- ▶ Conduct what-If analysis anytime, in seconds
- ▶ Share information, inputs and results with anyone including customers and suppliers

The result is reduced process cycle times, more accurate insights into key decisions and the ability to respond immediately to customer or supplier inputs.



New Scenario

Name: Test supply plan

Based on: New Order L2500-11

Apply perspective:

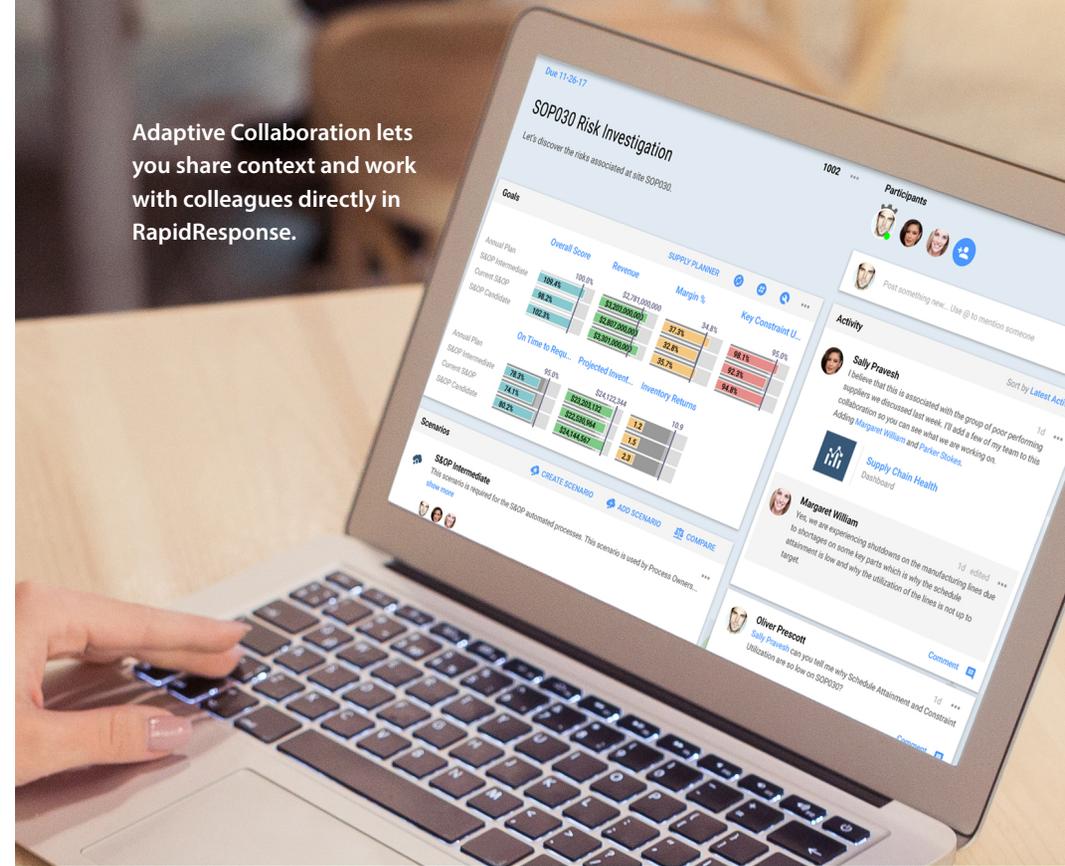
Purpose:
Can you analyze our supply plan to see if we can support this unexpected demand?

OK Cancel Help

Easily create new scenarios and share them with team members to solve problems faster.

Learn more about how RapidResponse can revolutionize your supply planning. Visit the [Kinaxis website](#) or [reach out](#) today!

Adaptive Collaboration lets you share context and work with colleagues directly in RapidResponse.



“Kinaxis RapidResponse provides a flexible supply chain tool which allows our planners to make better decisions with a fraction of the effort previously required. It also gives improved methodologies to manage and optimize inventory to support responsiveness to customers, and inventory goals.”

— Dave Stenfort, Operations, Anritsu

WANT TO LEARN MORE?

RapidResponse provides a supply planning solution tailored to meet the specific needs of your business, helping you align supply with demand, no matter how often things change.

[LEARN MORE](#)

The screenshot shows the Kinaxis website interface. At the top, there is a navigation bar with the Kinaxis logo (tagline: KNOW SOONER. ACT FASTER.) and menu items: PRODUCT, SOLUTION, RESOURCES, and ABOUT. A search bar is located on the right. Below the navigation bar, a breadcrumb trail reads: HOME / SOLUTION / SUPPLY CHAIN MANAGEMENT APPLICATIONS / AGGREGATE SUPPLY PLANNING. The main heading is "Aggregate Supply Planning" with the subtext "Ensure continuous demand and supply alignment". A red navigation bar below the heading contains three tabs: OVERVIEW (selected), DETAILS AND BENEFITS, and PROCESS COMPONENTS. The content area features an icon of three red arrows pointing up and right, followed by the text: "Align supply, at an aggregate level, to the demand plan generated by the consensus demand planning process." Below this is a paragraph: "The challenge of aligning supply to demand has become more difficult in recent years due to constrained global supply and highly volatile demand. Ensure continuous alignment across planning processes, identify gaps between demand and supply plans, and avoid excess or gating material and capacity. Users can collaborate with other functional areas to resolve issues and finalize the supply plan as a reference point for the master production scheduling (MPS) process." A section titled "TAILORED FOR YOUR BUSINESS" follows, stating: "RapidResponse applications are based on best-practices and standard process flows established by our years of successful deployments at a multitude of world-leading manufacturers. The out-of-the-box Aggregate Supply Planning application enables quick implementations and also acts as an advanced starting point for a tailored solution that meets your company's unique needs."

ABOUT KINAXIS

Offering the industry's only concurrent planning solution, Kinaxis helps organizations around the world revolutionize their supply chain planning. Kinaxis RapidResponse, our cloud-based supply chain management software, connects your data, processes and people into a single, harmonious environment. With a consolidated view of the entire supply chain, you can plan expected performance, monitor progress and respond to disconnects when reality hits. RapidResponse lets you know sooner and act faster, leading to reduced decision latency, and improved operational and financial performance. We can prove it. From implementation to expansion, we're here to help our customers with every step of their supply chain journey.

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REFERENCES

¹ [A pragmatic approach to getting started with artificial intelligence in supply chain planning](#), Kinaxis & SupplyChainBrain, December 2017.

This eBook is accurate as of the date published. It may be updated by Kinaxis from time to time at its discretion.

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