NUCLEUS RESEARCH

SCP TECHNOLOGY VALUE MATRIX™ 2024

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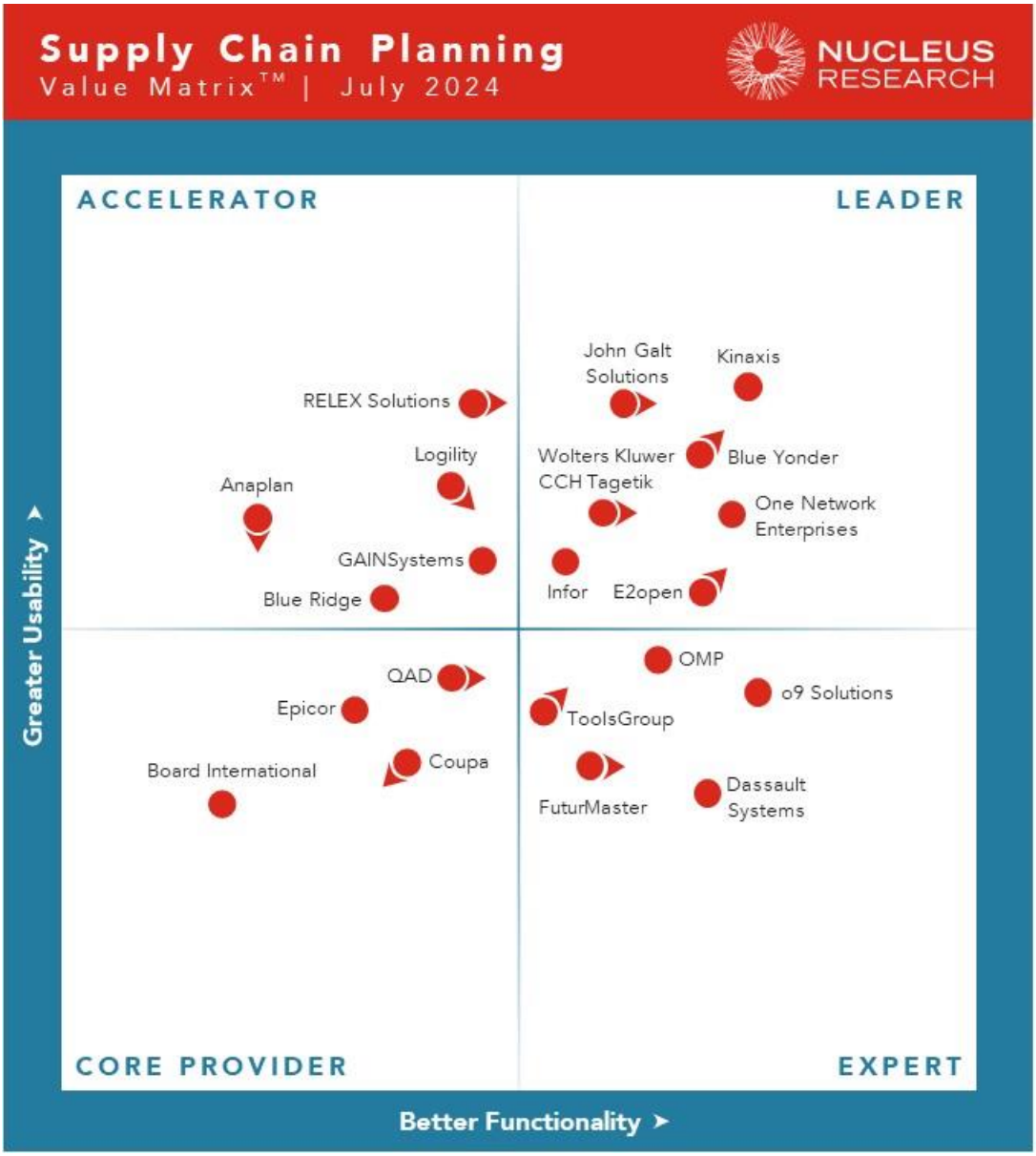
THE BOTTOM LINE

The Supply Chain Planning (SCP) market in 2024 is marked by improved alignment between planning and execution, driven by integrations across planning, logistics, and warehouse systems. This alignment ensures accurate information flow and seamless execution of supply chain plans. Vendors are introducing generative AI interfaces combined with heuristics, machine learning, solvers, and optimization capabilities, allowing users to interact with data conversationally and receive instant reports. For example, users can ask how avoiding a potential stockout might impact profitability, enabling proactive decision-making. Analysts observed that shorter implementation times and a focus on sustainability have increased the accessibility and alignment of SCP solutions with organizational needs.



OVERVIEW

Organizations use SCP systems to coordinate, communicate, and share planning data across their supply chains. These systems provide a single, centralized source for all planning information, covering demand, supply, sales, operations, and execution planning. This ensures consistency and accuracy in decision-making for the entire supply chain.

In 2023, Nucleus observed several significant trends in the SCP market. Despite a looming recession, there was a marked increase in first-time SCP buyers, primarily small-to-midsized businesses (SMBs) transitioning from Excel to modern SCP solutions. This shift was driven by the need for more sophisticated planning tools in response to a volatile supply chain environment. Large enterprises also began retiring legacy systems in favor of modern SCP functionality to manage demand swings and supply fluctuations better. The accessibility of SCP technology improved with cloud adoption, enhanced data capture practices, and tiered product bundles, making it more feasible for smaller companies.

Building upon these trends, Nucleus found further advancements in the SCP market in 2024. Planning vendors have enhanced the user experience by combining generative AI capabilities with heuristics, machine learning, solvers, and optimization capabilities. This gives conversational AI agents a "brain," allowing users to interact with an organization's data conversationally, query questions, and receive instant reports. For example, users can ask how avoiding a potential stockout might impact profitability, enabling them to make informed decisions proactively. This capability enhances the efficiency of planners and buyers, making SCP solutions more intuitive. Additional generative AI use cases in SCP include item description generation, supplier recommendations, automated report generation on sales performance, and snapshot views of demand drops and supply issues.

Integration between execution and planning has become a significant focus for SCP vendors. Software vendors have partnered with transportation management system (TMS) and warehouse management system (WMS) providers or added other supply chain management (SCM) modules to their offerings. These connections and additions allow SCP systems to incorporate data sources such as logistics and warehousing data into planning processes to ensure plans are accurate and executable within operational constraints. Nucleus found that organizations utilize forecasting capabilities beyond predicting finished goods quantities; they now forecast optimal driver routes based on current inventory plans. This allows organizations to optimize product distribution by incorporating operational data to improve routing and scheduling and enhance overall supply chain efficiency. Sustainability is also a priority in SCP, with vendors improving and rolling out ESG offerings for customers that continue to manage carbon footprints and support global decarbonization initiatives tightly. In 2024, vendors continue to offer SCP platforms with microservices and modular architectures. This allows customers to independently develop, deploy, and scale individual components, such as demand planning, inventory optimization, and sales and operations planning (S&OP), enabling them to customize solutions to their specific needs.

Through end-user conversations, Nucleus observed that the time required to deploy SCP platforms has significantly decreased. During conversations with customers a few years ago, implementation times were reported to be around a year and a half or more. Analysts found that recent conversations in 2024 indicate these times have shortened to an average of nine

and a half months. This reduction in implementation time, combined with more thoughtful approaches to data gathering and change management, has made SCP technology more accessible and practical for organizations.

In this Value Matrix, vendors are positioned according to the relative usability and functionality of their respective solutions, as well as the value that customers realized from each product's capabilities (Nucleus Research X222 – Understanding the Value Matrix – December 2023) and presented as a snapshot of the current market rather than an empirical ranking of vendors. The arrows indicate perceived momentum in the indicated direction with respect to usability and functionality. Positioning and momentum are informed primarily by conversations with end-users, along with the most recently released capabilities/features and areas of vendor investment.

LEADERS

Leaders in the 2024 SCP Technology Value Matrix include Blue Yonder, e2open, Infor, John Galt Solutions, Kinaxis, One Network Enterprises, and Wolters Kluwer CCH Tagetik.

BLUE YONDER

Blue Yonder is a leader in the 2024 SCP Technology Value Matrix. With over 400 patents supporting it since 2021, Blue Yonder's supply chain planning solutions offer end-to-end integrated capabilities for Integrated Business Planning (IBP), demand, supply, inventory, and manufacturing planning. Cognitive Planning uses real-time data to enable synchronization of the entire supply chain, assisting businesses in making prompt, well-informed decisions. Custom data models, AI/ML algorithms, and analytics can be added to Blue Yonder's solutions in addition to the fully productized AI and ML, prepackaged industry-specific use cases and workflows, out-of-the-box capabilities, and faster reaction to market forces. Blue Yonder offers a full spectrum of supply chain management capabilities, including Supply Chain Planning, Control Tower, Transportation Management, Warehouse Management, Workforce Management, Order Management, Category Management, and Retail Merchandise Management. Blue Yonder's Cognitive Demand Planning solution, built on a microservices architecture and leveraging the latest technology stack from Snowflake and Microsoft, utilizes AI and machine learning to analyze at-scale datasets encompassing historical sales, inventory, marketing efforts, and social media sentiment. In addition, Blue Yonder supply chain planning solutions offer extensive advanced solvers that cater to industry-specific supply planning requirements across manufacturing and retail. This allows businesses to improve forecasting accuracy, respond to disruptions, generate optimized plans, and enhance cross-functional collaboration.

Blue Yonder's platform centers around a unified supply chain data model, single data storage system, and in-memory computing architecture. This architecture enables on-demand scaling to handle large data volumes. The Blue Yonder Platform facilitates extensibility through tools like integrated development environments, enterprise-grade application lifecycle management, secure access to data models, and microservices libraries. Customers and partners can utilize these tools to build custom applications, including customized AI and ML, data models, business logic, and analytics dashboards on the core platform. Blue Yonder's scenario automation feature generates numerous simulations using varying parameters based on defined objectives and constraints and techniques like polytope analysis. The vendor's user experience incorporates generative AI and machine learning for intelligent, guided decision support. The emphasis lies in leveraging technologies like AI, machine learning, and optimization with a gen AI interface to automate and enhance supply chain planning decision-making.

Recent product updates and announcements include:

- Over the last 12 months, Blue Yonder updated its Cognitive Demand Planning platform to provide demand planning with a multi-dimensional analysis worksheet for better collaboration, advanced ML forecasting with real-time what-if simulations, improved forecast accuracy for various product stages, and explainable ML for interpretable and transparent predictions that help drive planner confidence and adoption.
- Blue Yonder announced its Cognitive IBP, which combines Blue Yonder's planning process innovations with a focus on decision-making to enhance strategic planning with AI-driven insights, autonomous scenario planning, digital risk and opportunity management, and an improved user experience.
- Over the last 12 months, Blue Yonder acquired supply chain planning vendor flexis AG, specializing in production planning, scheduling, transportation planning, and optimization. This allows manufacturing customers in variant-rich industries to optimize smart factory setups with enhanced order slotting, efficient order sequencing, and detailed scheduling. Customers can continuously compare requirements and capacities while considering numerous constraints and managing sales fluctuations and supply bottlenecks to ensure smooth production and balanced logistics.

E2OPEN

E2open is a leader in the 2024 SCP Technology Value Matrix. E2open serves organizations within the aerospace and defense, retail, software, telecommunications, apparel, automotive, consumer goods, food and beverage, high-tech, manufacturing, oil and gas, pharmaceutical, and third-party logistics industries. A wide range of applications from

e2open are available to assist businesses in efficiently managing the supply chain's planning, execution, and optimization. Core planning applications include demand planning, demand sensing, supply planning, supply sensing, sales and operations planning, inventory optimization, distribution planning, and order promising. Add-on capabilities include supplier collaboration, demand signal management, transportation management, control tower, and due diligence screening. E2open's partner network, e2net, comprises over 480,000 connected enterprises, making it one of the largest collaborative networks of supply chain partners. Users can integrate data flows from their immediate neighbors and related partner networks and their entire operational ecosystem using e2net. An organization can enhance its delay and shortage warning capabilities and promptly identify disruptions using an aerial view of the operation. E2open supports various use cases to increase efficiency and profitability, including real-time supply chain visualization and shipping optimization. Since e2open's real-time sensing capabilities and distinctive network integration enable businesses to detect and manage disruptions at almost any tier or node, it is especially well-suited for enterprises with complex supply chains.

Recent product updates and announcements include:

- In the last 12 months, e2open introduced several AI/ML-based features, including machine learning pattern recognition for accurate product-to-SKU-level splitting, a smart clustering feature in demand sensing, and transparency of AI results to build planner trust. These updates improve the precision of demand forecasting and enhance planner confidence in AI-driven decisions.
- E2open released numerous capabilities to boost planner productivity, such as better control over data dimensions, automatic cleansing of inactive and obsolete products, more flexible transportation planning, and integrated workflow enhancements. These updates streamline planning activities and improve forecast accuracy.
- E2open continued its shift towards a microservices architecture, extending capabilities across the platform and introducing domain-specific planning microservices. This transition enhances the e2open platform's scalability and flexibility.
- Recently, the e2open Retail Adaptor received certification from Walmart to connect with Walmart's Luminate Channel Performance APIs. This certification enables companies to quickly deploy and manage connections with Walmart's retail network and gain a cohesive view of their entire retail network.
- E2open launched Supply Network Discovery, a feature that provides multi-tier supplier discovery, relationship mapping, and traceability. This structured engagement tool aids in due diligence and partner impact assessments, enhancing supply chain transparency and collaboration.

INFOR

Infor is a leader in the 2024 SCP Technology Value Matrix. Infor SCP supports a variety of industries, including food and beverage, chemical, life science, automotive, distribution, and manufacturing. Including demand prediction and planning, sales and operations planning, supply planning, inventory optimization, capacity management, and scheduling functionalities, Infor SCP is a comprehensive supply chain planning solution offering many features. Infor SCP is compatible with the business's production, operations, and execution functions. It can operate independently or seamlessly integrate with a broader Infor ecosystem. Organizations can view their entire order processing and status, supply and demand, and financials across multiple supply chain tiers thanks to native connectivity with Infor Nexus and Manufacturing Execution Systems like Infor Lighthouse and Infor SCP. Real-time data allows users to quickly develop forecasts and backup plans while maintaining the flexibility to deal with unanticipated disruptions as they happen. Moreover, Infor SCP integrates demand, marketing, and merchandise data with Infor CloudSuite ERP natively to expand planning across sales, operations, and productions. Additionally, clients can easily incorporate Infor SCP with various third-party applications and tailor it to emphasize metrics specific to their needs.

Between 2022 and 2023, Infor made several critical updates to its products. In the April 2022 release, they extended the LN and DP integration scope, including generic items in forecasting and importing item supersession data. In Q2 2022, they enhanced collaboration and usability by allowing users to attach notes to the planning engine. To improve demand predictability, Infor added prediction intervals, and their Demand Planning now uses machine learning to optimize algorithm selection. They tailored the Supply Chain Optimization and Forecast Consumption models for Supply Planning to specific industry conditions. Additionally, Infor updated production scheduling capabilities, enabling customers to modify the details of a product batch and split batches over multiple resources, which increases plant productivity.

JOHN GALT SOLUTIONS

John Galt Solutions is a leader in the 2024 SCP Technology Value Matrix. John Galt serves organizations within the food and beverage, consumer goods, apparel, retail, high-tech, life sciences, industrial manufacturing, wholesale distribution, and chemical industries. The organization's flagship suite, The Atlas Planning Platform, is well-known for providing a SaaS infrastructure for quick and flexible application deployment using a low-code/no-code approach. Finance, planning, and execution are integrated by Atlas's end-to-end supply chain planning solutions, which synchronize, automate, and optimize processes. Specific SCP features include sales and operations planning, demand, supply, inventory, replenishment, transportation planning and optimization, manufacturing, and scheduling

capabilities. The Atlas Planning Platform models real-world operations by connecting internal and external data from various systems and sources across the supply chain and broader enterprise ecosystem in real-time. This provides continuous intelligence, enhances supply chain visibility, and delivers data-driven decision-making through AI/ML models. With Atlas's digital twin modeling capability, planners can anticipate and explore alternative scenarios, analyze probabilistic outcomes, and balance the benefits and drawbacks across capacity, service, sustainability, and financial considerations while considering potential risks and uncertainties. Supply chain models can be modified to satisfy an organization's unique supply chain network performance targets, designs, and business objectives, including service level performance, sustainability, and profitability – which allows Atlas to create holistic plans for companies with different supply chain configurations like retail and manufacturing, make to stock and make to order, and more. Atlas increases productivity and higher-quality decision-making and streamlines business operations through intelligent automation, decision augmentation, and streamlined workflows.

John Galt Solutions continues to invest in containerizing Atlas to improve flexibility, adaptability, and scalability. Enhancements to the Atlas Planning Platform included accelerating quality decision-making, delivering an intuitive user experience, and deeper insights into supply chain network models, using an enhanced graph database to reveal relationships across various supply chain components. They also launched a new user experience, incorporating enhanced what-if scenarios and an integrated planning interface for building visual dashboards, action workbenches, advanced analytical reports, and facilitating executive meetings. Other updates included the expansion of optimization algorithms in their master production scheduling application, new advanced pegging capabilities, and improved master data management for modeling complex relationships. The vendor expanded machine learning and AI offerings to enhance automation, planner productivity, data quality, and decision-making.

Recent product updates in the past 12 months:

- Over the last 12 months, John Galt Solutions introduced a model for real-world supply chain probabilities using AI-powered Q-learning, enabling companies to capitalize on uncertainty and improve decision-making.
- In 2023, John Galt Solutions launched reinforcement learning for probabilistic planning, new ensemble forecasting techniques, and a GenAI-enabled virtual assistant for productivity and task automation.
- John Galt Solutions introduced a composable workspace for dynamic decision-making and collaboration. It provides prescriptive recommendations and enables users to build, adjust, and execute end-to-end processes with complete visibility.
- Over the last 12 months, John Galt developed new techniques to support complex production processes, accounting for additional resource types, capacity models, and product usage scenarios.

- The vendor improved scenario planning capabilities, allowing users to visualize, manage, compare, and explore multiple scenario versions and understand interconnections across the scenario flow.
- The vendor continues to expand its global partner program by adding more than 30 system integrator/consulting partners and more than a dozen technology partners in execution, transportation, risk, and other areas to support a fully continuous and orchestrated end-to-end supply chain.
- John Galt Solutions continues expanding the microservices available across the supply chain planning platform, enabling modularity and innovation.
- John Galt Solutions also made the Atlas Planning Platform available in the Microsoft Azure Marketplace, enhancing deployment scalability, reliability, and agility.

KINAXIS

Kinaxis is placed as a leader in the 2024 SCP Technology Value Matrix. Across multiple industries, including automotive, consumer products, high-tech and electronics, retail, life sciences, aerospace and defense, and industrial, Kinaxis' provides supply chain planning and execution functionality. Components of the platform include inventory planning and optimization, demand sensing and planning, capacity planning, supply and production planning and scheduling, control tower, S&OP, and IBP. With the acquisition of MPO in 2022, the organization has also added transportation, order management, reverse logistics, and other functionality. Utilizing Kinaxis as the hub of planning to guide upstream and downstream execution is shared among users due to its extensive SCP capabilities. To streamline automated decision-making over time, Kinaxis also provides what-if scenario modeling tools and AI-generated recommendations to direct decision-making based on internal priorities. These are utilized in post-game analysis. Customers will have better control and uniformity over their supply chain operations by using the platform to develop and test new workbooks and algorithms. The supply chain's latency is decreased by the out-of-the-box capabilities, integration with third-party apps, and Kinaxis Planning One package shortens the time-to-value for new users by speeding up implementations.

Recent product updates and announcements include:

- At Kinexions 2024 in Miami, Kinaxis introduced Maestro, the evolution of RapidResponse, an AI-infused supply chain orchestration platform. Maestro combines technologies to provide transparency and agility across the supply chain, from strategic planning to last-mile delivery. The platform features a supply chain data fabric connecting data sources, an always-on intelligence engine delivering real-time insights and solutions, and a user interface for decision-making from any device. Maestro's AI-powered assistant helps manage disruptions in real time. This platform

automates routine tasks, predicts future scenarios, and enables teams to use intuitive tools efficiently.

- Over the past 12 months, Kinaxis integrated Climatiq's carbon intelligence solutions into its platform as part of the Solution Extension (SolEx) partnership. This integration provides Kinaxis customers with access to accurate carbon insights for upstream and downstream logistics, enabling analysis of the carbon footprint of any component or material tracked with Kinaxis. This capability helps customers measure and address scope three emissions throughout their supply chains, supporting practical decarbonization efforts. The integration extends Kinaxis' sustainability capabilities into freight transport, shipment flows, and logistical energy consumption, further aiding global supply chains in reducing their environmental impact.
- Recently, Kinaxis has expanded its PartnerLink program to better support partners in driving end-to-end supply chain orchestration for customers. The program, which includes System Integrators (SIs), Cloud partners, Solution Extension partners (SolEx), and Value-Added Resellers (VARs), has grown to over 170 partners and 2,500+ certified consultants globally since its launch in 2021. Key investments for 2024 include the launch of a Partner Relationship Management Portal, serving as a dynamic, all-in-one communications hub, and the introduction of the first-ever Global Partner Roadshow, featuring in-person events across APAC, EMEA, and North America. Additionally, an expanded list of certifications will keep consultants updated on new technological developments, and a new tiering system will provide various financial and business benefits. These investments aim to empower the Kinaxis partner community to support digital transformation in supply chains better, ensuring agility, predictability, and intelligence to handle global trade disruptions and unexpected risks.
- From 2023 to 2024, Kinaxis welcomed PredictHQ, a predictive demand intelligence company, as a Solution Extension partner. This integration provides Kinaxis customers access to PredictHQ's extensive event data stream to enhance demand forecasting, event visibility, dynamic pricing, inventory management, and delivery optimization. PredictHQ's AI-powered platform helps businesses predict future demand from local events, tracking 19 event categories, including sports, festivals, politics, public holidays, severe weather, and airport delays. This partnership aims to improve planning and responsiveness to disruptions by leveraging intelligent data.
- On January 11th, 2024, Kinaxis expanded its retail offering with new AI and ML-powered innovations that provide end-to-end supply chain transparency, demand forecasting, and simulation scenario planning. These enhancements help retailers manage complex supply chains and meet customer demand despite disruptions. Key updates include Demand.AI innovations, which use machine learning to understand internal and external factors affecting demand, enabling proactive risk resolution and revenue maximization; Replenishment Planning, a new capability to manage

replenishment parameters and ensure timely restocking while avoiding excess inventory; and Demand Planning innovations, which provide visualizations to explain demand patterns and allow retailers to adjust forecasts based on trends across products, geographies, stores, SKUs, and more. These innovations help retailers make confident supply chain decisions at scale, creating a seamless and resilient supply chain.

- At Kinexions 2023 in Nashville, Kinaxis showcased new product innovations to provide a more transparent end-to-end supply chain. These innovations include Enterprise Scheduling, a tool that allows companies to create and manage a globally integrated production scheduling strategy; Supply Chain Execution capabilities, which incorporate transportation, order, and returns management with Supply Chain Planning to eliminate siloes; and Sustainable Supply Chain, a solution that embeds emissions factors into Maestro to project and simulate CO2e in real-time. Additionally, new features within Demand.AI, part of the Planning.AI application, help companies understand and respond to internal and external factors influencing product demand. These innovations aim to enhance collaboration, decision-making, and efficiency across the supply chain, meeting the needs for real-time operation and a unified view of information.
- Over the last 12 months, Kinaxis announced that its supply chain management solution, Kinaxis Maestro, is now available on Google Cloud and in the Google Cloud Marketplace. Maestro supports key business processes such as demand and supply planning, integrated business planning, sales and operations planning, and inventory management, offering end-to-end transparency with its control tower capabilities. The platform's concurrent planning breaks down organizational silos, unifies disparate data, and aligns all elements of the supply chain. This availability on Google Cloud allows for accelerated deployment and utilization of Kinaxis' capabilities, contributing to organizations' pre-committed cloud consumption. This partnership enhances Kinaxis' ability to deliver supply chain agility and resilience globally, leveraging Google Cloud's infrastructure. This move expands Kinaxis' multi-cloud approach, providing options for deployment on a Kinaxis-hosted private cloud or a public cloud like Google Cloud.

ONE NETWORK ENTERPRISES

One Network Enterprises is a leader in the 2024 SCP Technology Value Matrix. One Network offers integrated supply chain management functionality that includes control tower, logistics management, supply and demand planning, sales and operations planning, order management, warehouse management, and inventory optimization, among other features. The organization's flagship feature, The One Network's Digital Supply Chain Network, links all customer companies and their trading partners, allowing users to work

with a network of upstream and downstream partners, including more than 150,000 suppliers, retailers, manufacturers, and logistics companies. Users can coordinate planning and execution with multiple trading partners by using the Digital Supply Chain Network. This works in a hub-to-hub fashion so each participant can connect with their networks, onboarding once. One Network's NEO Platform supports multiple multi-tenancy models, such as network and classic multi-tenant, and is built for multi-party network ecosystems. To suit specific verticals, the vendor also provides customized industry cores. These include consumer goods, automotive and industrial manufacturing, life sciences and healthcare, retail, defense and government, high tech and aerospace, carriers and logistics services, and humanitarian aid.

One Network's SCP platform enables continuous and incremental business planning and execution across the Digital Supply Chain Network. It allows all issues to be translated and communicated to parties in near real-time, with smart prescriptions provided in a graphical workbench. The solution has an embedded control tower that provides "Dynamic Adaptive Flows" and multi-tier, multi-party collaboration, marrying planning and execution using real-time network data and autonomous learning algorithms. The platform's Multi-Echelon Inventory Optimization (MEIO) capabilities balance inventory needs across the network to fulfill service objectives and maximize financial performance. It considers node-specific perpetual inventory and capacity across multiple tiers, sites, and parties, compressing lead times from integrated planning to optimize inventory allocation. One Network's NEO Assistant monitors supply chain plans for changes, enabling an incremental planning cycle with reduced data and process latency. With planning and execution data residing on a single model, NEO Assistant detects bottlenecks and risks, assesses impact and potential mitigation, and propagates change upstream/downstream, rebalancing demand and supply.

Recent product updates in the past 12 months:

- In the past 12 months, One Network Enterprises enhanced its planning environment to support automation across materials, capacity, and capital flow, building on its strengths in Control Towers for actionable insights. This helps organizations seamlessly assess the impact of changes and take proactive actions, enhancing overall supply chain responsiveness.
- In 2023, One Network Enterprises implemented the Scheduling Standards Consortium (SSC) API, creating a more efficient appointment scheduling process between shippers, carriers, and suppliers.
- Over the last year, One Network Enterprises integrated various capacity types into their end-to-end constrained planning, ensuring feasible plans by incorporating real-time updates and multi-enterprise scenarios. This development guarantees that supply chain plans are feasible and actionable across the entire network.

- One Network Enterprises developed scenario-enabled planning and enhanced Order Forecast Collaboration with a new UI, collaborative waterfall visibility, and multi-party ticketing. These updates significantly strengthen inbound supply solutions by improving collaboration and visibility between vendors and buyers.
- One Network Enterprises improved its supply planning workbench to dynamically capture constraints across temporal scales, addressing variability in downstream demand and incorporating upstream constraints. This enables more accurate and feasible supply plans, ensuring smooth operations.
- In the past year, One Network Enterprises enhanced to-midterm constraints for continuous planning, including labor, equipment, and facility capacity adjustments, supporting dynamic changes in supply and demand. This reduces latency in adjusting plans to reflect real-time changes, making the planning process more agile.
- The software vendor extended key performance indicators (KPIs) for rules-based order prioritization to improve fulfillment rates and customer SLAs. This ensures more balanced and efficient order fulfillment, effectively meeting customer expectations.
- Over the last 12 months, the vendor improved ML agents for ETA prediction and execution analytics and introduced smart prescriptions for various supply chain needs, such as low-carbon vendors, equipment, and S&OP revenue. These enhancements drive better predictive and prescriptive analytics, improving decision-making.
- One Network Enterprises upgraded NEO Plasma, enabling user-driven network enhancements with real-time state access and updates and self-service integration capabilities. This empowers users to customize and enhance network functionalities, removing bottlenecks and extending the network's reach.
- Over the past year, the organization improved constrained execution and optimization by considering site and global constraints, optimizing service levels, and recommending promotional events with the best net profit margin. This maximizes profitability while effectively managing resource constraints.
- One Network Enterprises advanced its environmental sustainability efforts by integrating carbon information into vendor selection processes and enhancing the order expedited workbench. These updates support companies' efforts to reduce their carbon footprint and promote sustainable practices.

WOLTERS KLUWER CCH TAGETIK

Wolters Kluwer CCH Tagetik is placed as a leader in the 2024 SCP Technology Value Matrix. The software vendor supports organizations within the food and beverage, consumer packaged goods, oil & gas, manufacturing, automotive, pharmaceutical, and retail industries. Leveraging operational and financial data with analytics-rich dashboards and

decision-focused collaboration, workflow, and reporting, CCH Tagetik Supply Chain Planning is a finance-forward solution that enhances organizational visibility and optimization for intricate operations. The vendor offers planning capabilities in multiple domains, including multi-echelon inventory optimization, S&OP, demand, supply, capacity, and production planning. The AI/ML models in the CCH Tagetik solution use probabilistic predictive intelligence to update forecasts automatically, spot anomalies, and spot new opportunities in real time, assisting businesses in increasing profitability and efficiencies. The demand planning module can analyze several variables to recommend the best course of action for users, including advertising, promotions, the launch of new products, seasonal trends, and competitor activity. Users can develop supply plans for capacity, product introduction, production scheduling, and material requirement planning (MRP) with the help of the enterprise-grade data integration and scaling provided by the CCH Tagetik platform. This minimizes stock shortages, maximizes margins, and enhances inventory turnover. The organization's IBP uses scenario planning to deliver timely, collaborative supply chain plans aligned with finance and other functions. The solution connects strategy with operations, finance, and regulatory/ESG requirements.

Recent product updates in the past 12 months:

- Over the past year, Wolters Kluwer has enhanced Integrated Business Planning for Consumer-Packaged Goods (CPG), including support for promotional planning. These enhancements help customers achieve integrated business planning by providing capabilities to create better, understand, and act on planning and status information in both financial and operational terms. Additionally, extended reporting capabilities now support concurrent reports for finance and operations professionals, and reporting has been expanded into non-traditional operational areas like workforce and ECO planning.
- Wolters Kluwer introduced several AI/ML enhancements, including Objective AI for AI Automapping, AI Anomaly Detection, and AI Driver-Based Analysis. AI Automapping accelerates data collection and ensures data governance by automating the mapping of imported data into the CCH Tagetik data models. AI Anomaly Detection highlights data outliers for expert review, ensuring data integrity before use. AI Driver-Based Analysis identifies key business drivers in the data, enriching data exploration, profitability analysis, and reporting.
- Recently, Wolters Kluwer introduced multi-sourcing capabilities, allowing procurement from more than one supplier for the same or similar items. Purchase order enhancements include improved navigation, adding future projected orders, editing multiple line items, and managing approvals more efficiently.
- Over the last 12 months, the organization enhanced production planning to include a Bill of Material (BOM) Rollup. This update provides a detailed understanding of

firm versus projected demand for each component used in producing finished goods, enabling more precise production planning and inventory management.

EXPERTS

Dassault Systems, FuturMaster, o9 Solutions, OMP, and ToolsGroup are experts in the 2024 SCP Technology Value Matrix.

DASSAULT SYSTEMS

Dassault Systems is an expert in the 2024 SCP Technology Value Matrix, recognized for its 3DExperience platform. The vendor provides capabilities to organizations within the construction, aerospace and defense, consumer packaged goods, high-tech, home equipment, healthcare, transportation, and marine industries. Dassault Systemes' 3DEXPERIENCE platform enables organizations to create digital models that simulate products, processes, and operations, integrating virtual and real worlds for comprehensive supply chain management. DELMIA, powered by the 3DEXPERIENCE platform, addresses complex business processes within supply chain, logistics, and workforce operations. DELMIA Supply Chain Planning and Optimization (SCPO) includes demand forecasting, scenario analysis, and supply planning. Demand planning utilizes historical demand and market intelligence for accurate forecasting, with demand sensing capabilities allowing immediate forecast revisions based on market changes. Supply planning optimizes distribution, manufacturing, and procurement operations by integrating demand plans and enabling scenario comparison for critical decision-making.

Master Production Scheduling (MPS) links sales demand with manufacturing capacity to create realistic production plans, minimizing overstock and maximizing on-time delivery. Advanced Planning and Scheduling (APS) offers dynamic and intelligent scheduling capabilities, considering resource and raw material availability, capacity constraints, and real-time data to create optimized schedules. DELMIA's Integrated Business Planning (IBP) aligns business and financial goals with supply chain and manufacturing operations. IBP integrates data from supply chain projections, financial reports, and strategic plans to develop a single holistic business plan. This alignment enhances innovation and resilience against disruptions. The platform also provides precision modeling, intelligent optimization using AI and ML, seamless collaboration, scenario analysis, and real-time analytics. By integrating real-time data from various sources, DELMIA solutions enable businesses to respond proactively to market fluctuations and disruptive events. This holistic approach ensures continuous improvement, risk mitigation, and alignment with business objectives, driving sustainable growth and profitability for organizations.

FUTURMASTER

FuturMaster is an expert in the 2024 SCP Technology Value Matrix. FuturMaster supports organizations within process manufacturing (packaged goods, fresh food, pharmaceuticals, chemicals, and energy), discrete manufacturing (electronics, apparel, automotive, and transportation), and retail industries. FuturMaster's Bloom platform is a comprehensive SCP solution designed to enhance efficiency, agility, and resilience across various planning horizons. Built to support strategic, mid-term, and short-term planning, the platform ensures alignment with a company's overall strategy. Key capabilities include sales and operations planning, demand planning, and inventory optimization, all integrated to provide a cohesive and responsive supply chain management system.

The S&OP module ensures horizontal and vertical alignment across departments, allowing for strategic execution and real-time adjustment of plans. It enables collaboration between sales, marketing, development, manufacturing, sourcing, and finance, ensuring a unified approach to achieving sales objectives and financial targets. Demand planning leverages advanced analytics and machine learning algorithms to cleanse data automatically, select the most suitable forecasting models, and provide accurate forecasts. This module integrates sell-through and sell-out data, allowing companies to sense demand fluctuations at different levels of the supply chain, from distributors to end consumers. By processing large volumes of data and considering external variables, businesses can refine their forecasts, adjust to real-time market dynamics, and maintain optimal inventory levels to prevent stock-outs and overstock situations.

The Bloom platform's procurement planning capabilities handle complex multi-source networks by considering various supplier constraints such as minimum order quantities, lead times, and transportation capacities. This ensures that procurement strategies align with overall business objectives while adapting to the operational realities of the supply chain. Detailed multidimensional reports and KPIs provide insights into procurement performance, helping businesses proactively identify and address potential issues. By prioritizing service quality, demand requirements, and supplier reliability, the Bloom platform facilitates strategic supplier relationships and efficient resource allocation, reducing costs and enhancing supply chain performance.

Global optimization is a core strength of the Bloom platform, utilizing smart algorithms to create optimized plans that consider the extended supply network. The platform enables vertical integration of long, mid, and short-term planning by inheriting higher-level decisions, ensuring consistent decision-making aligned with overall business goals. Horizontal integration fosters collaboration with partners and suppliers, streamlining processes and improving efficiency across the supply chain.

Product updates in the last 12 months:

- Over the past year, FuturMaster introduced a dynamic forecast model selection system that categorizes products and locations based on specific sales patterns, such as seasonal, stationary, or discrete. The system selects a tailored pool of forecast models for each category. Utilizing artificial intelligence, it automatically determines and applies the most suitable forecast model for each product and location, ensuring optimal accuracy and efficiency in forecasting.
- Recently, FuturMaster introduced AI-driven external variable integration, which autonomously assesses and incorporates relevant external variables into each product and location analysis based on their sales patterns. This system transforms raw data into actionable insights, providing a comprehensive view of each product and location's performance and enhancing forecast accuracy.
- In the past year, FuturMaster enhanced its extensive data processing capabilities by combining distributed storage and massively parallel processing to handle vast data volumes efficiently. Additionally, they introduced real-time OLAP and adjustment capabilities, enabling instantaneous analysis and on-the-fly adjustments even with large datasets. This facilitates more agile and informed business strategies.
- From 2023 to 2024, FuturMaster introduced the Network Insight Graph, enhancing the ability to visualize, understand, explore, and reveal previously unexploited possibilities within the supply network. This tool increases agility and resilience by providing deep insights into the supply network, allowing users to identify issues and take action on root causes.

O9 SOLUTIONS

o9 Solutions is an expert in the 2024 SCP Technology Value Matrix. o9 Solutions offers SCP capabilities for organizations within consumer products and goods, high-tech, industrial manufacturing, medical devices, oil and gas, and pharmaceutical industries. Its o9 Digital Brain platform integrates planning and decision-making processes with internal and external data sources to create adaptive strategies that optimize supply, demand, and inventory plans. Customers often choose o9 Solutions Because of its capabilities for integrated business planning, demand sensing and shaping, promotions and merchandise planning, and sales and operations planning. With the help of o9's Enterprise Knowledge Graph technology, businesses can build a digital twin of their supply chain with high granularity along different hierarchies, encompassing planning and predictive maintenance procedures. Additionally, by utilizing a variety of machine learning algorithms, o9's customers can model and generate numerous scenarios about demand, supply, inventory, and distribution.

From 2022 to 2023, o9 Solutions partnered with PredictHQ to integrate enriched event data into their forecasting, improving efficiency and profitability in staffing, pricing, and inventory management. The vendor launched the Nexprime SCM Mobile, developed with Samsung SDS, and extended their Digital Brain platform to mobile devices, making it more accessible

to a broader range of users. o9 strengthened its partnership with project44 to offer integrated supply chain visibility, including predictive tracking and real-time ETAs, enhancing revenue and cost management. They launched Supply Sensing, a solution to predict supply disruptions by mapping macro-level shocks to specific supply chains and creating mitigating strategies. Lastly, the vendor joined the AWS Partner Network (APN), allowing businesses to deploy their cloud-native solutions via the Amazon Web Services Cloud, accelerating the digital transformation of supply chain planning and execution processes.

Recent product updates in the past 12 months:

- In April 2024, o9 Solutions integrated Microsoft Azure OpenAI Service with its Digital Brain platform to enhance AI-powered planning capabilities and digitize organizational knowledge from various Microsoft applications. This integration improves semantic searches, real-time decision-making, and automation workflows for supply chain planners, enabling more efficient and informed business operations. The enhanced platform uses large language models to convert data into expert recipes and provides intelligent responses to natural language queries.
- In April 2024, o9 Solutions incorporated Generative AI capabilities into its Digital Brain platform to enhance its Enterprise Knowledge Graph (EKG). This advancement converts tribal knowledge into digital knowledge, improving expertise levels and productivity across supply chain, procurement, finance, and sales functions. The GenAI-powered platform allows for a more accurate analysis of the plan versus actual deviations. It enables users to digitize their expertise through simple conversational methods, making critical knowledge accessible for informed decision-making.
- On April 8th, 2024, o9 Solutions formed a strategic partnership with Resilinc to enhance supply chain risk management. This partnership integrates Resilinc's multi-tier supply chain risk data with o9's analytics solutions, providing joint clients greater visibility into their supply networks. Clients can now detect upstream risks earlier, evaluate what-if scenarios, and make data-driven decisions to mitigate risks and minimize disruptions, ultimately improving service levels and inventory reliability.
- o9 expanded its partnership with AWS by joining Amazon's ISV Workload Migration Program to accelerate digital transformations by migrating on-premise legacy planning software to o9's SaaS offering on AWS. This collaboration leverages AWS funding, technical support, and go-to-market resources to enhance o9's Digital Brain platform deployment across industries. o9, an AWS Advanced Tier partner and AWS Supply Chain competency launch partner, offers its platform in the AWS Marketplace, aiding clients in integrated business planning, supply chain planning, and demand
- In February 2024, o9 Solutions integrated Revenue Growth Management (RGM) solutions into its Digital Brain platform to help CPG companies and retailers optimize

commercial planning, tracking, predictions, P&L, and post-event analysis. This integration connects commercial and marketing data to overall planning processes, offering visibility into trade promotions, optimized pricing, and revenue forecasting. Companies like Arla Foods use o9's RGM capabilities for trade investment optimization, consumer response simulation, and pricing strategy alignment. The unified platform supports integrated business planning by combining insights across pricing, promotions, and revenue forecasting into a cohesive plan aligned with business objectives.

- On July 27th,2023, o9 Solutions formed a business alliance with MangoGem S.A. to integrate MangoGem's AI-powered optimization software into o9's Digital Brain platform. This partnership allows o9 clients to replace legacy production scheduling systems with advanced AI technology, enhancing integrated business planning and scheduling processes. The integration aims to optimize operations, improve service levels, and increase operational efficiencies. This combined solution is already in use at a large global food and beverage manufacturer, demonstrating significant improvements in manufacturing operations through aligned planning and scheduling.
- On July 19th, 2023, o9 Solutions received an additional $116 million investment from existing investors, led by General Atlantic's BeyondNetZero and with KKR and Generation Investment Management participation. This raised the software vendors' valuation to $3.7 billion.
- In July 2023, Genpact and o9 Solutions expanded their partnership to offer a jointly developed planning-as-a-service solution leveraging generative AI. This offering combines Genpact's digital innovation and supply chain transformation expertise with o9's advanced AI and machine learning technologies. The service utilizes o9's Digital Brain platform and network planning capabilities to enhance client supply chain and scenario planning, providing a flexible engagement model that boosts ROI in digital transformation initiatives. The solution aims to reduce supply chain costs, eliminate waste, and enhance operating efficiencies amidst volatile market conditions.
- On June 29th, 2023, o9 Solutions formed a business alliance with flexis AG to integrate flexis' logistics solvers and algorithms into o9's Digital Brain platform. This partnership aims to provide end-to-end supply chain visibility and optimize manufacturing and logistics for joint clients, particularly benefiting manufacturers with complex production cycles. The integrated solution enhances transportation planning, scheduling, and optimization capabilities. The collaboration supports a large dairy manufacturer, showcasing improved supply chain and logistics planning. The partnership aims to reduce environmental footprints, planning efforts, and logistics costs while ensuring fast ROI for clients.

OMP

OMP is placed as an expert in the 2024 SCP Technology Value Matrix, recognized for its Unison Planning platform and its industry approach. OMP supports consumer goods, chemical, life sciences, metals, and packaging organizations. OMPs technology offerings include demand management, sales and operations planning, scheduling, and data management. OMP addresses the complexity of balancing diverse production flows and global demand uncertainties in the chemicals industry. The platform models the entire supply chain, incorporating production and storage constraints, variable bills of materials, and batch processes. It facilitates effective management of dedicated and non-dedicated tanks, minimizes changeovers, and optimizes utility consumption. The solution ensures synchronized production strategies, reliable forecasting, and coordinated supply and demand planning, enhancing profitability and efficiency. OMP helps manage short product life cycles and high competition in the consumer goods sector. The platform offers demand sensing, scenario planning tools, and solvers to handle phase-ins and phase-outs, optimize asset utilization, and balance distribution center networks. It supports just-in-time production, campaign planning, and component sourcing, reducing setup times, lead times, and inventory levels. The system ensures end-to-end visibility and agility across the supply chain, enabling quick adaptation to market dynamics and efficient response to consumer demand.

In the life sciences industry, OMP manages the fragmented and dynamic demand across sales channels and regulatory environments. The platform models the entire supply chain, from chemical synthesis to drug product manufacturing and distribution. It addresses quality and authorization constraints, supports dual-sourcing strategies, and optimizes inventory levels and production schedules. OMP enhances collaboration across the supply chain, improving efficiency, reducing lead times, and mitigating risks related to expiration and regulatory changes. The metals industry benefits from OMP's ability to handle complex supply chains with volatile markets and diverse order sizes. The platform streamlines forecasting, sales and operations planning, and detailed order scheduling. It generates bills of material and routing plans, accelerates order confirmation, shortens lead times, and improves machine utilization rates. The solution optimizes material margins and reduces inventory and conversion costs, ensuring alignment of operations across plants and subcontractors.

OMP addresses the challenges of evolving markets and volatile demand dynamics for the paper, plastic film, and packaging industries. The platform covers the entire value chain, from sourcing to delivery, with tools for smart forecasting, S&OP, campaign planning, cutting, multistage trimming, and scheduling. It supports make-to-order and make-to-stock manufacturing, reduces operational costs, and minimizes scrap and stock levels. OMP

includes corrugator optimization, integrated transport planning, and an industry-enabled manufacturing execution system (MES) for full traceability and optimized network design.

Recent product updates in the past 12 months:

- In November 2023, OMP launched generative AI pilots in collaboration with Fortune 500 customers to revolutionize supply chain planning. Unveiled at the OMP Conference in Barcelona, these pilots explore innovative use cases powered by Gen AI to elevate planning knowledge and advance supply chain insights. Gen AI integrates into OMP's Unison Planning solution, providing a chatbot-like interface for consulting documentation and offering hands-on support, thus improving knowledge access and adoption. The technology also responds to user queries in natural language, generating insights, charts, and macros on demand. Additionally, Gen AI will crawl internal and external data, including emails, documents, social media, and market trends, to offer a broader view of risks and trends impacting businesses. This initiative, driven by intensive collaboration with customers, aims to make planning more efficient and focus on decision-making and value addition.
- In September 2023, collaboration software Nulogy and OMP expanded their partnership to enhance supply chain digital transformation for life sciences and chemical industries. Initially focused on consumer-packaged goods and food & beverage sectors, the partnership now integrates OMP's Unison Planning platform with Nulogy's multi-enterprise collaboration solution. This combination optimizes internal supply chain operations, enabling real-time collaboration across supplier networks. The expansion aims to provide cross-enterprise visibility triggered by the interest of common customers in these new industries. The partnership ensures increased data accuracy, reduced latency, and more agile supply chains. Key benefits include improved decision-making and seamless multi-enterprise collaboration, leveraging OMP's XAI-based Unison Planning and Nulogy's AI-enabled platform.
- In June 2023, OMP and data management vendor Rulex extended their partnership to improve data quality in supply chain planning by integrating the Rulex Platform with OMP's Unison Planning. The collaboration focuses on enhancing the quality of master and operational data through cleansing and validation functionalities, which will streamline the deployment of OMP's Unison Planning Solution. A new OMP-Rulex connector for Rulex's no-code, drag-and-drop data management platform will leverage Rulex's data consolidation and validation capabilities. This intensified collaboration aims to help OMP customers manage complex data landscapes more efficiently, accelerating the implementation of Unison Planning. The partnership includes a dedicated platform extension, joint marketing efforts, and a pilot program for critical customers. This expansion underscores OMP's commitment to addressing data management challenges and enhancing supply chain planning processes.

TOOLSGROUP

ToolsGroup is an expert in the 2024 SCP Technology Value Matrix. The inventory planning and optimization tool from ToolsGroup, Service Optimizer 99+ (SO99+), provides end-to-end modeling at SKU-location combinations to cut expenses while preserving desired service. It is an AI-powered solution that supports the aftermarket parts, manufacturing, distribution, retail, and consumer packaged goods industries. It integrates demand planning, sensing, sales and operations planning, allocation and replenishment, promotions planning, pricing optimization, and production and network planning on one platform. The solution integrates with third-party CRM, ERP, and BI programs to enhance cross-functional cooperation and organizational visibility. Additionally, ToolsGroup provides retail-specific solutions, including assortment planning, price and promotions management, in-season inventory optimization, and merchandise finance planning to help retailers establish resilient supply chains and support them during the sourcing, production, and fulfillment processes.

From 2022 to 2023, ToolsGroup acquired Onera, a company specializing in real-time inventory visibility and fulfillment solutions for retailers. This acquisition is expected to provide enhanced inventory visibility and optimization tools, contributing to a more flexible and resilient supply chain for retailers. Additionally, ToolsGroup partnered with Planalytics to integrate their analytics solutions, enabling customers better to manage the weather's impact on their businesses. This integration allows customers to utilize Planalytics' weather-driven demand models within ToolsGroup's retail and industrial planning solutions, providing access to detailed weather impact analytics for various products, categories, stores, and regions. As a result, customers can achieve more accurate forecasting, optimized inventory levels, and reduced lost sales due to weather volatility, capturing specific data points relevant to their operations.

Recent product announcements include:

- In April 2024, ToolsGroup launched PromoAI, a promotions optimization tool within the JustEnough retail planning suite, to maximize sales lift from promotions while minimizing margin sacrifices. Built on ToolsGroup's patented pricing algorithm, PromoAI allows retailers to simulate multiple promotional strategies instantly and choose the best outcomes. Key benefits include 360-degree promotional optimization, streamlined processes, and increased brand value. PromoAI helps tailor promotions to unique customer bases, maximizing margins and profits. Early adopters, like Conbipel, have noted significant bottom-line improvements. PromoAI is part of ToolsGroup's JustEnough solution, which delivers substantial value and results in retail planning and execution.
- In January 2024, ToolsGroup launched the In-Season Inventory Optimization Solution within the JustEnough retail planning suite, combining allocation, replenishment, rebalancing, and markdown optimization powered by EvoAI's

quantum analytics and Inventory HUB's zero latency tracking. This solution helps retailers respond quickly to demand changes, ensuring optimal product placement, real-time replenishment, and minimized end-of-season waste. It aims to maximize profits amidst market uncertainty by leveraging real-time data and advanced AI-driven forecasting.

- On October 5th, 2023, ToolsGroup launched an improved user experience for its Service Optimizer 99+ (SO99+) supply chain planning solution with release 8.62. The update features a sleek, modern interface aligned with the latest UI/UX design principles, enhancing user adoption and business performance. Key additions include enhanced seasonality clustering and aggregate forecasting functions, enabling users to leverage machine learning, streamline processes, and make better planning decisions. The update results from close customer collaboration and aims to deliver intuitive AI-powered supply chain solutions. With every subsequent release, ToolsGroup continues to deliver leading customer experience updates.
- On September 27th, 2023, ToolsGroup acquired Evo, an AI and ML solutions provider, to integrate Evo's responsive AI with ToolsGroup's Service Optimizer 99+ and JustEnough solutions. This integration offers real-time supply chain and price optimization, enhancing ToolsGroup's dynamic and decision-centric planning capabilities. The acquisition will enable customers to optimize inventory and pricing, supporting better decision-making across the supply chain. This move follows ToolsGroup's strategic expansions, including acquisitions in demand management and retail execution.
- In July 2023, ToolsGroup launched version 8.61 of its Service Optimizer 99+ software, focusing on improved visibility, explainability, and usability in demand and supply planning. Key enhancements include automated new product introduction suggestions, item/area-level seasonality clustering, misaligned forecast value alerts, and alternative transportation mode recommendations. These updates aim to improve service levels, reduce excess stock, eliminate waste, and increase profits. The new features complement existing dynamic planning capabilities, such as NPI dashboards, aggregate forecasting, dynamic multi-sourcing, and probabilistic Bill of Materials. This release supports ToolsGroup's mission to enhance supply chain sustainability and performance.

ACCELERATORS

The 2024 SCP Technology Value Matrix accelerators include Anaplan, Blue Ridge, GAINSystems, Logility, and RELEX Solutions.

ANAPLAN

Anaplan is recognized as an accelerator in the 2024 SCP Technology Value Matrix. The vendor provides services to the life sciences, high-tech, consumer goods, retail, manufacturing, and healthcare industries. Anaplan is a cloud-native planning, modeling, and forecasting tool covering supply chain, IT, HR, sales, marketing, and finance operations. Anaplan helps increase corporate visibility and decision-making by centralizing operational data from many sources through its "Connected Planning" method. The solution for supply chain planning includes several functions, including sales, inventory, and operations (SI&O), as well as supply and demand planning. Supply chain planners can increase the precision of their demand, supply forecasts, and balance plans through what-if planning by utilizing special hyper-scale computers. In addition, customers can enhance their sales and operations planning by immediately adjusting to changes in the supply chain and making necessary modifications to satisfy requirements. Predictive Anaplan Enterprise and market data can be connected via insights, which makes it easier to perform large-scale predictive modeling and provides valuable planning insights. The product from Anaplan can be used flexibly in various industries to handle the difficulties in adjusting planning to execution realities.

The PlanIQ platform from Anaplan works with Amazon Web Services Amazon Forecast to offer a sophisticated forecasting framework that uses machine learning to produce precise projections. To provide enhanced execution visibility, real-time dashboards, and supply chain disruption warnings, Anaplan's Connected Planning solution collaborates with Google Cloud's Digital Supply Chain Twin. Forecasting accuracy is improved by Anaplan's integrated demand planning platform with Google's Vertex AI. Users can access the Anaplan platform on desktop and mobile devices. Integrating Anaplan's collaborative capabilities with Slack and DocuSign can improve customer connection. Anaplans UX allows customers to create reports and provide essential insights in addition to these tools. With the help of Anaplan's Hyperblock technology, users may build models to help with decision-making and plan several scenarios in the allotted lead times. Workflow automation and third-party data integration with external cloud-based data and service providers are offered via Anaplan's CloudWorks feature.

Between 2022 and 2023, Anaplan made several strategic moves to enhance its platform and expand its market reach. In January 2023, Anaplan partnered with Adobe Workfront to offer a digital transformation solution that improves visibility into marketing performance, helping organizations optimize their investments to achieve revenue, profit, volume, and engagement targets. In December 2022, Anaplan acquired Vuealta’s applications division, gaining advanced out-of-the-box capabilities for Demand & Promotions Planning, Supply Planning, Production Planning, and S&OP, strengthening Anaplan's supply chain applications. In June 2022, Anaplan's acquisition by Thoma Bravo was completed, providing

Anaplan with the resources to continue developing and improving its Connected Planning platform. In April 2022, Anaplan partnered with Coupa to integrate planning and forecasting with operational spend management, enabling users to optimize their planning and forecasting processes with better spend management capabilities.

Recent product updates in the past 12 months:

- Recently, Anaplan launched PartnerAccelerate, a global partner program designed to align partner capabilities with customer needs, offering businesses greater confidence and expertise in addressing planning challenges. Partners will be certified by a third-party auditor in their ability to sell, support, and deliver Anaplan solutions, with accreditation available in specific functional and industry areas. This program aims to help customers identify partners with the right skills and knowledge, ensuring faster time-to-value and more impactful execution. PartnerAccelerate also offers increased commissions, visibility, and access to strategic marketing for eligible partners.

BLUE RIDGE

Blue Ridge Global is placed as an accelerator in the 2024 SCP Technology Value Matrix. Serving the manufacturing, distribution, and retail industries, Blue Ridge is mainly focused on verticals, including wine and spirits, food services, furniture, hardware, HVAC, plumbing, and pet supplies. Blue Ridge offers features in an integrated platform: demand planning, AI/ML analytics, segmentation management, and IBP. The industry-specific pre-configured features, native cloud delivery, and user-friendly interface expedite the replacement of legacy systems. Blue Ridge integrates with over 40 ERP off-the-shelf and external apps, including business intelligence (BI) and customer relationship management (CRM) systems, to streamline operations and coordinate demand planning. Demand forecasting operations are streamlined by automatically updating prediction models based on detected seasonality, demand variability, and new goods. Blue Ridge uses a data cleansing procedure to remove abnormalities or inaccurate information from the demand history, including lost sales due to out-of-stock circumstances. By applying best-fit forecasting algorithms and pattern recognition for product classification, Blue Ridge customers may efficiently manage by exception by harnessing insights obtained from data analysis. Moreover, Blue Ridge improves the accuracy of its product inventory forecasts by combining machine learning models with time series data derived from historical demand patterns. Between 2022 and 2023, Blue Ridge Global introduced Deal Manager, a module within their pricing insights tool specifically for the wine and spirits industry. This pricing engine allows users to create deals and rebates for retail or wholesale customers, providing a single source of record for all available deals and analytics to assess and execute new pricing programs effectively.

Recent product updates in the past 12 months:

- In October 2023, Blue Ridge released the Xpression platform, which enhanced the user experience and UI and increased modeling performance. The platform also includes a machine learning forecasting solution that improves the capture of seasonality and customer trends.
- Recently, Blue Ridge introduced several new features to enhance demand planning. The platform now supports New Product Introduction & End of Life Analysis, allowing smooth product lifecycle transitions. Users can perform detailed analyses with drill-up / drill-down forecasting and generate customer-level forecasting for more accurate demand predictions. Growth Forecasting helps businesses anticipate future demand increases. The platform includes Overrides, Reversion, and Audit Trail to track forecast adjustments transparently. The system ensures accurate and up-to-date inventory data with support for various calendar structures, including the +4-4-5 calendar and automatic daily item classification. Item Linking through daisy chain linking, multiple forecasting algorithm options, and enhanced forecast accuracy are also featured. Additional capabilities include kitting management, order editing, handling on hold, stock status, and item date codes. The platform also supports forward buying and simulation, tracking open orders, accounting for lost sales, and integrating public holiday impacts into planning. Manual Ship Points and Supplier Groups customization streamline supply chain operations.
- Over the last 12 months, Blue Ridge improved its replenishment capabilities by incorporating customer-specific events into planning and evaluating different sourcing scenarios with Multi-Sourcing Scenario Analysis. Order Cycle Optimization analyzes multiple scenarios to find the most efficient ordering schedule. The system offers flexibility in order outputs and simplifies inventory transfers between locations. Daily Item/Location Level Order Generation enhances precision in inventory management. Order Build Science customizes item grouping to optimize logistics and reduce costs. The platform provides future inventory projections and streamlines the order approval process. A bulk update feature allows mass updates to orders and inventory data, saving time and reducing errors.
- Blue Ridges' platform now includes embedded analytics and reporting tools to support data-driven decision-making, integrating these capabilities seamlessly within the system.
- Recently, enhancements in supply planning include Master Production Scheduling to help businesses meet demand efficiently and Rough-Cut Capacity Planning to estimate high-level capacity needs, ensuring feasibility in production plans.

- Over the last year, Blue Ridge has enhanced the usability of its platform with a modern, user-friendly interface and embedded analytics and reporting tools, making it easier for users to navigate and utilize the system effectively.

GAINSYSTEMS

GAINSystems is an accelerator in the 2024 SCP Technology Value Matrix. The vendor specializes in offering SCP solutions to the distribution, retail, manufacturing, and service parts sectors. GAINSystems provides Demand planning and forecasting, inventory optimization, replenishment and procurement automation, supply and production optimization, and sales and operations planning (S&OP) capabilities. With GAINS's AI-powered Multi-Echelon Inventory Optimization (MEIO) approach, businesses can lower inventory and supply chain costs, enhance service levels, and automatically detect and react to changes. Additionally, businesses can maximize their inventory value by considering the bill-of-materials (BOM) and Distribution (DRP) requirements for the entire network and determining the best service levels for each SKU according to location. The SCP platform makes informed decision-making possible. It gives executives an aerial view of the situation by combining sales, financial, and operational data into a single version of the truth. Management can monitor their team's progress on a single dashboard and assess business plans using financial and volumetric measurements.

Between 2022 and 2023, GAINS introduced GAINS X, a significant update unveiled at the annual GAINS Summit in September 2022. This new version featured a redesigned user experience (UX) developed in collaboration with customers, incorporating visual cues and action-oriented workflows to enhance connectivity among supply chain professionals and facilitate faster decision-making. In addition, GAINS announced new supply chain design capabilities and solutions aimed at improving collaboration between customers and suppliers, aligning with their Design Planning and Execution (DP&E) approach. They also revealed plans to enhance the user experience by improving self-service capabilities and expanding the partner community.

Recent product updates in the past 12 months:

- Recently, GAINS accelerated its transition to a hyperscale cloud environment with a composable, services-oriented architecture for improved scalability and flexibility.
- Over the last 12 months, GAINS acquired 3 Tenants Optimization (3TO) in 2023 to integrate supply chain design and planning, enabling customers to orchestrate decisions within a single environment.
- In 2023, GAINS launched a demand forecast factory that generates Machine Learning models using customer data. The factory integrates various inputs, including GAINS predictions and external factors, for more accurate forecasting.

- GAINS introduced its Connect Integration Suite, which is SAP-certified and features low-code/no-code connector building, a public REST API for real-time processing, and improved integration tooling.
- Over the last 12 months, GAINS implemented a Machine-Learning-based lead-time prediction service for more accurate order fulfillment forecasting, replacing standard ERP lead-time values to automate tasks like purchase order creation and delivery notifications.
- GAINS enhanced its CSLO application to help customers achieve targeted service levels for inventory segments while considering various constraints.

LOGILITY

Logility is placed as an accelerator in the 2024 SCP Technology Value Matrix, recognized for the Logility Digital Supply Chain Platform. This platform combines several features to facilitate collaborative S&OP and integrated business planning. A platform data management and integration layer also allows for standardizing data across divisions and geographies. The supplier also provides AI-powered projections, enabling users to make more accurate judgments by automatically detecting changes in demand. Users can save expenses and eliminate stockouts at every inventory stage using Logility for multi-echelon inventory optimization. Moreover, users can enhance operating performance through automated vendor management, efficient production schedules, and sourcing tactics. Additionally, Logility provides specific solutions for various industries, including retail, fashion, process chemicals, food and beverage, consumer goods and durables, packaging, and service parts.

From 2022 to 2023, Logility made significant updates to enhance its supply chain solutions. In June 2022, Logility acquired Starboard Solutions Corp., which provides software for creating digital twins of customers' physical supply chains. This acquisition enhances Logility's capabilities in supply chain visualization and management. Logility introduced new features to reduce time and complexity in planning and scheduling activities, including implementing a dynamic planning pyramid. They enriched product traceability, improving ease of use and offering advanced visualizations. Additionally, they enhanced support for manufacturing planning and optimization, particularly for managing multiple lots and shelf life. Logility also improved the ability for customers to streamline and integrate social and environmental information from various sources, better supporting ESG initiatives.

Product updates in the last 12 months:

- In May 2024, Logility expanded its generative AI capabilities within the Logility Digital Supply Chain Platform to enhance supply chain efficiency, resilience, and competitiveness. Collaborating with Deloitte Canada, Logility is developing GenAI use cases to address demand, supply, inventory, and order fulfillment challenges.

This integration allows planners to focus on high-value activities and enables executives to make strategic decisions quickly. The GenAI features provide tailored insights by understanding complex supply chain data, which generic AI solutions cannot achieve. These capabilities are designed specifically for supply chain applications and are integrated via natural language interaction, offering an intuitive user experience. This collaboration aims to accelerate the adoption of GenAI in supply chain planning, empowering organizations to make data-driven decisions with greater confidence.

- In April 2024, Logility introduced the Decision Command Center, a new feature to enhance supply chain decision-making by leveraging data and intelligence. This holistic approach improves cross-functional collaboration and organizational efficiency by providing data-driven insights for end-to-end decisions. The Decision Command Center integrates multiple use cases across supply chain processes, offering enhanced visibility and a complete audit trail for decision-making. It facilitates collaboration, improves visibility, and promotes interconnectedness across the enterprise, breaking down functional silos and supporting quick, contextual, and continuous data-driven decisions. This new feature helps organizations achieve faster results, better resource utilization, and greater value creation.
- Over the last 12 months, Logility enhanced its Digital Supply Chain Platform with new features designed to improve vendor and supplier relationship visibility. These updates support corporate responsibility, traceability, and vendor management, addressing challenges retail and apparel companies face in managing vendor information. The new functionality includes a Vendor Compliance Dashboard for tracking supplier sustainability performance, faster supplier onboarding with improved certificate management, and tools to reduce product risk by identifying at-risk purchase orders and restricted suppliers. Additionally, the platform enhances communication with clear notifications for compliance forms and tracks legal violations for better compliance monitoring.
- Logility recently introduced the InventoryAI+ Dashboard, which provides an all-in-one overview for intelligent exception management and efficient inventory data handling. Probabilistic Inventory Planning with Automated Inventory Policies addresses sporadic demand items by determining appropriate safety stock policies through statistical analysis, ensuring desired service levels without overstocking. The Manufacturing Optimization application now features streamlined cloud configuration and onboarding. This update simplifies data import, plant creation, and user support, eliminating the need for intricate database manipulations and allowing users to perform these tasks directly within the application. The platform now includes a Cancel Compliance Form feature, enabling Corporate Responsibility Advisors and Vendor Management Business Leads to cancel compliance forms within the assessment process. Notifications are sent to all involved parties to foster

transparency and effective communication. Additionally, the platform captures and records legal compliance violation information based on region or country, allowing authorized advisors to monitor and modify legal violation details comprehensively.

- On September 7th, 2023, Logility acquired Garvis, a SaaS startup that combines large language models (like ChatGPT) with AI-native demand forecasting. The acquisition introduces DemandAI+, an AI-first forecasting solution that uses Generative AI and machine learning to modernize demand and inventory planning. DemandAI+ digitizes supply chain relationships and provides real-time answers to queries, enhancing transparency and decision-making across the organization. This solution will be embedded into the Logility Digital Supply Chain Platform, making Logility the only platform to leverage Generative AI, advanced AI algorithms, and machine learning for demand forecasting. DemandAI+ addresses various forecasting needs, including base demand, promotional lift, causal forecasts, external data, and user insights. It thereby improves forecast accuracy and aligns organizations in dynamic markets.

RELEX SOLUTIONS

RELEX Solutions is recognized as an accelerator in the 2024 SCP Technology Value Matrix. RELEX provides demand planning, supply planning, merchandising planning, integrated business planning, and sales and operations execution solutions to mid-sized to tier-one organizations. RELEX supports organizations within the retail (grocery, convenience stores, electronic retailers, home furnishing), wholesale and distribution (automotive, pharmaceutical, building and construction), and consumer packaged goods and manufacturing (fresh food producers, food and beverage, health and beauty, and home and living) industries. The RELEX unified supply chain and retail planning platform is designed to integrate and streamline various functions across the supply chain, leveraging AI and machine learning. The platform utilizes digital twin modeling, allowing users to simulate and optimize supply chain processes. This approach ensures that all planning functions are connected through a centralized demand forecasting and data engine.

RELEX's platform offers several key capabilities, including demand planning, demand sensing, supply planning, and merchandising. The demand planning module improves forecast accuracy through automated demand forecasting and collaborative planning workflows. Demand sensing catches near-term shifts in demand patterns. Supply planning encompasses end-to-end master planning, inventory management, distribution planning, and production scheduling, optimizing availability and reducing costs. The merchandising suite includes assortment planning, price optimization, and promotion planning, enabling retailers to enhance customer choices and store profitability. Additionally, the platform supports operations with integrated business planning, workload forecasting, and workforce management, ensuring alignment across demand, supply, workforce, and business targets.

The RELEX platform's architecture is scalable, allowing for easy addition of new solutions and seamless upgrades. It is built on a data infrastructure, incorporating partnerships with data management leaders like Snowflake and Confluent Kafka.

Product updates in the last 12 months:

- In January 2024, RELEX acquired Optimity to offer customers synchronized demand, supply, production, and distribution planning within a single platform. This acquisition enhances RELEX's production planning and supply chain optimization capabilities, including daily production planning, optimization, and production scheduling in complex food & beverage and manufacturing industries.
- Over the past year, RELEX introduced planning capabilities designed explicitly for ultrashort shelf-life products in industries such as fresh produce, meat, poultry, and dairy. These capabilities help manage the unique challenges associated with short shelf-life products, ensuring optimal freshness, reducing waste, and improving overall supply chain efficiency in these sectors.
- Over the last year, RELEX introduced highly configurable optimization and explainable machine learning (ML) models that are user-friendly. These sophisticated algorithms are now accessible to business users without programming or advanced math skills, making advanced supply chain management tools easier to use and understand.
- Recently, RELEX enhanced its retail store-level forecasting and replenishment platform with improved retailer-supplier collaboration capabilities and upstream manufacturing and purchase planning, enabling seamless retailer-manufacturer collaboration within a single platform. This integration enhances accuracy in forecasting, replenishment, and overall supply chain coordination between retailers and manufacturers.
- Over the past year, RELEX launched Rebot, a RELEX-trained large language model (LLM) that introduces GenAI capabilities.
- In the last year, RELEX introduced advanced supply chain diagnostics and prediction capabilities. These include root cause analysis for out-of-stock situations and predictive analytics for in-stock positions. These enhancements enable proactive inventory management, reducing stockouts and ensuring product availability.
- RELEX implemented AI and ML-driven consumer behavior modeling and predictive inventory capabilities. These enhancements model batch balances in in-store and distribution center (DC) environments, accounting for data inaccuracies caused by unexplained loss and consumer-grabbing behavior. This improves inventory accuracy and optimizes stock levels based on actual consumer behavior.
- In the past year, RELEX introduced the ability to match customer product data with external emissions data providers using advanced natural language processing. This capability supports enhanced planning decisions and reporting based on CO2

impact, enabling customers to make more environmentally conscious decisions and improve sustainability through RELEX CO2 Analytics.

- Over the last year, RELEX introduced new commercial and merchandising planning capabilities to unlock unified benefits across the platform. This includes a new price optimization solution that complements promotion optimization and enhancements to assortment planning, providing a more comprehensive and integrated approach to retail planning.

CORE PROVIDERS

Core providers in the 2024 SCP Technology Value Matrix include Board International, Coupa, Epicor, and QAD.

BOARD INTERNATIONAL

Board International Intelligent Planning for Supply Chain is a core provider in the 2024 SCP Technology Value Matrix. With integrated capabilities for demand planning, supply planning, rough-cut capacity planning, and sales and operations planning, this solution provides customers with a single source of record for planning activities. Customers may maximize profitability and develop robust reactions to variations in supply and demand with these tools. Customers accessing concurrent supply chain data throughout the network can respond more quickly. Board Intelligent Planning for Supply Chain prioritizes Integrated Business Planning, empowering clients to develop workforce and allocation strategies to handle the launch of new products or capitalize on price elasticity for increased profit margins.

Between 2022 and 2023, Board introduced several key updates to enhance its platform's integration and data exchange capabilities. They added new REST APIs, allowing organizations to efficiently integrate with suppliers' and customers' systems and connect workflows inside and outside the organization. Board also expanded its pre-built integrations with over 30 new connectors to ERPs, business applications, cloud, and significant data sources, simplifying system integration and providing streamlined connectivity to transactional systems of record. Additionally, Board launched new Smart Import Object mapping options, offering greater flexibility for use cases involving unbalanced hierarchies. They also released R-connect, enabling users to exchange data with an R-server and AI/ML algorithms to provide real-time results, enhancing the platform's analytical capabilities.

COUPA

Coupa is placed as a core provider in the 2024 SCP Technology Value Matrix recognized for the Coupa Supply Chain Design and Planning platform. Though it also has features to help sales and operations planning, inventory optimization, capacity management, and analytics, this platform is mainly used for supply chain design. In addition, Coupa provides digital twin capabilities for modeling the future using pertinent algorithms and visualizing the present supply chain. Additionally, the vendor offers Supplier Management to identify dangerous suppliers during the design phase, create contingency plans to deal with them, and Sourcing to initiate sourcing events at the best cost and service performance. The organization was acquired by Thoma Bravo in December 2022 for $8B, making Coupa a private company and enabling Coupa to sell its products across Thoma Bravo's existing portfolio.

Product updates in the last 12 months:

- Coupa introduced generative AI-driven innovations to enhance its supply chain management capabilities. Key updates include auto-assigning new purchases, suppliers, contracts, and sourcing event requests for improved visibility and control, and launching an Early Access Program for Forecast Collaboration to better match supply and demand and aid in planning future material needs.

EPICOR

Epicor is recognized as a core provider in the 2024 SCP Technology Value Matrix for its Inventory Planning and Optimization solution. In 2024, the organization purchased vendor Smart Software and rebranded the solution under the Epicor name. The platform integrates inventory optimization, demand, and supply planning, reporting, and analytics tools that may be implemented modularly. Located on AWS, Epicors IP&O is multi-tenant and primarily serves the manufacturing, distribution, and service parts sectors. Customers frequently select Epicor because of its capacity to precisely arrange stocking criteria for aftermarket items and spare parts and its intermittent demand forecasting capabilities. Including risk, demand, and lead time ranges, Epicor's probabilistic forecasting engine provides customers with information on optimal policies and service level targets. Users can also simulate lead times using scenario planning functionality rather than depending on average lead times from previous data.

Between 2022 and 2023, Epicor introduced several significant enhancements to its supply planning and order management solutions. They launched the new Epicor Supply Planner (SP), an automated solution that predicts on-hand inventory and order schedules, integrated with the Epicor platform. Epicor introduced "Gen 2" probabilistic methods, enabling daily forecasting that accounts for day-of-the-week, week-of-the-month, month-of-the-year

seasonality, and random lead times, ensuring a more comprehensive risk assessment for inventory stocking decisions. Additionally, Epicor's machine learning models can now automatically identify the optimal amount of historical data for forecasts, eliminating the need for manual data selection and improving forecast accuracy. They also introduced ML-driven cluster analysis, which groups products based on similar demand profiles to support group planning and analytics. Furthermore, Epicor launched a parts forecasting module to support forecasting repairable parts, accounting for lead times associated with random repair and returns and random failures. This module produces accurate demand and supply forecasts, resulting in precise inventory and replenishment plans.

Recent product announcements include:

- On May 1st, 2024, Epicor acquired Smart Software, a cloud-based, AI-driven inventory planning and optimization (IP&O) application, to enhance its ERP solutions for the make, move, and sell industries. This acquisition accelerates Epicor's delivery of AI-powered capabilities across business operations, transforming ERP from a system of record to a system of action. Smart Software's Smart IP&O platform uses patented AI and machine learning models to improve demand forecasting, inventory management, and operational performance. It enables users to run "what if" analyses, predict stockout risks, and optimize inventory policies for higher financial returns. Integrating Smart Software's solutions with Epicor ERP platforms helps users make strategic inventory decisions, optimize stock levels, and improve customer satisfaction and cash flow management by minimizing stockouts and preventing excess inventory.
- Over the last 12 months, Epicor introduced the "Grow AI Inventory Forecasting" add-on for their Grow platform, a comprehensive cloud-based business intelligence tool. This new add-on enhances inventory management with AI-driven capabilities, allowing for seamless data import, 'what-if' scenarios, and data-driven decisions within ERP systems. The benefits include improved forecast accuracy, reduced excess inventory, fewer missed revenue opportunities, and streamlined decision-making for better financial outcomes and efficiency.
- Over the past year, Epicor integrated three patent-pending innovations into their platform, leveraging machine learning and probabilistic forecasting to enhance statistical forecasting and inventory optimization. The "Gen 2" probabilistic methods enable daily forecasting that accounts for seasonality and random lead times, improving risk assessment for stock levels. Machine learning models now automatically determine the optimal amount of historical data for more accurate forecasts. ML clustering algorithms group parts with similar demand profiles, supporting group planning and insights like optimal warehouse co-location.

QAD

QAD is placed as a core provider in the 2024 SCP Technology Value Matrix for its Digital Supply Chain Planning offering that provides customers with supply chain planning, supplier relationship management, demand and delivery, transportation and execution, and commerce functionality. Supported industries include consumer goods, food & beverage, life sciences, industrial manufacturing, and high-tech. Specific SCP functionality includes demand, production, financials, S&OP, procurement, distribution, and supply chain planning. With QAD Automation Solutions, QAD supplier relationship management (SRM), and QAD Global Trade and Transportation Execution (QAD GTTE), users may additionally plan and manage shipments, screen suppliers, and automate procurement processes. Customers frequently cite QAD's enhanced supplier and distributor cooperation, real-time order tracking, responsiveness to supply and demand variations, and capacity to anticipate interruption events and mitigate their effects on service and finances as reasons for choosing the system. Users can create supply chain plans that consider cash flow, sales, margins, costing, resource usage, and budget adherence for better alignment between finance and operations by utilizing QAD's focus on business scenario planning.

Between 2022 and 2023, QAD introduced significant updates to its DSCP solution, culminating in the release of version 2022.1. This version is designed to help customers better navigate global supply chain interruptions by featuring a revamped planner experience with extended home pages and dashboards. The update includes an embedded supply chain analytics engine to instantly detect potential impacts on current plans, allowing planners to perform scenario analysis and determine the best course of action within an acceptable risk profile. The enhancements in version 2022.1 also focus on reducing time-to-value and simplifying the experience of buying, deploying, configuring, and owning the QAD DSCP solution. Wizards are used to prototype a fully configured planning system based on planner questionnaire responses, streamlining the setup process. Additionally, QAD DSCP 2022 offers an advanced planner experience with intuitive homepages providing real-time updates, alerts, and KPIs. The solution features a single control tower and is deployed on the AWS cloud, leveraging native cloud services for artificial intelligence and data access to improve scalability, availability, performance, and security.

Recent product updates in the past 12 months:

- On February 27, 2024, QAD announced the launch of its Industrial Transformation Platform, known as the O^3 Platform. This initiative aims to revolutionize global business operations and support organizations in becoming Adaptive Enterprises. The O^3 Platform represents a significant advancement in QAD's offerings, focusing on optimizing People, Processes, and Systems to drive operational excellence and enhance productivity for manufacturers and supply chains.

- On December 13, 2023, QAD announced a significant new release of its Digital Supply Chain Planning (DSCP) solution. This release drives supply chain value and helps manufacturers manage fluctuating costs and macroeconomic factors. The latest enhancements offer a more intuitive, intelligent, automated, and adaptive digital planning experience. In 2023, QAD DSCP includes extended digital planning capabilities such as advanced analytics, enhanced supply chain data management, and dynamic filtering, providing a comprehensive and seamless cloud planning experience. Additionally, the new version features embedded Ready-to-Plan capabilities, an intelligent, rapid prototyping solution that offers standard, automated modeling from a custom design. This reduces time to value and cost of ownership, with further configuration options tailored to specific industry or customer requirements, effectively creating a "digital twin" of a customer's supply chain.