NUCLEUS RESEARCH

CONTROL TOWER TECHNOLOGY VALUE MATRIX 2023

ANALYST
Isaac Gould

THE BOTTOM LINE

Control Tower solutions are vital to any organization's supply chain management (SCM) toolkit. In addition to managing supply and demand volatility, Control Towers combat rising operating costs by balancing service levels, margins, and ESG factors. The Control Tower market has grown crowded. Traditional planning specialists now offer dedicated solutions that rival comprehensive SCM platforms' functionality. To differentiate their offerings in a competitive landscape, vendors have focused development on automated AI resolutions, ESG tracking and modeling, transportation visibility and integration, and Generative AI.

Control Tower
Value Matrix | September 2023

NUCLEUS RESEARCH

FACILITATOR

LEADER

Greater Usability ➤

Alloy

One Network
Enterprises

Kinaxis

Coupa

Infor

Elementum

Blue Yonder

E2open

o9 Solutions

ShipitSmarter

Elemica

SAP

Viewlocity

CORE PROVIDER

EXPERT

Better Functionality ➤

MARKET OVERVIEW

Over the last year, inflation and rising costs have been the greatest threat to supply chain operations. While Control Tower solutions experienced a surge in popularity following the volatility wrought by COVID-19, they remain a vital component of supply chain management and a competitive differentiator for organizations that must manage increasing complexity,

disruptions, and costs. Control Tower solutions help organizations control costs by providing early detection of disruptions and resolutions that balance service levels, risk, margins, and emissions.

Comprehensive control towers that monitor supply chains from multi-tier suppliers to last-mile delivery help organizations make decisions that account for the various aspects of the supply chain, helping businesses avoid operational silos and collaborate directly with their trading partners. Furthermore, control towers deliver analytics to identify network design optimization opportunities as the system models upstream and downstream impacts to alternative routes, product mix, and supplier options.

Driver shortages, weather events, and geopolitical risks have severely destabilized logistics operations. Organizations, especially those involved in international trade, encounter more delays, backlogs, port congestion, impacted routes, rising port fees and tariffs, and increased transport costs. Control Tower technology has demonstrated its value in mitigating transportation disruption and maintaining order lifecycle visibility. Control Tower vendors deliver capabilities that grant visibility to orders in transit, regardless of channel, mode, or stage. This visibility provides early delay warnings, giving planners and analysts greater latitude in resolution options, and some systems can even push logistic prescriptions out for execution for automated decision-making. Vendors extend Control Tower coverage to the entire transportation journey by partnering with visibility platforms and TMS vendors or developing TMS functionality organically or through acquisition.

Increasing public, investor, and regulatory pressures mean that most large enterprises have implemented ESG initiatives in their overall supply chain strategy. As such, ESG tracking and reporting have become another key development focus for vendors. Organizations turn to Control Tower technology to track ESG information, such as emissions data, assessments, and certifications. Modern Control Towers incorporate emissions into resolutions so that users understand the emissions impact of an order at each stage for scenario comparisons. Some vendors offer automated resolutions that balance emissions as organizations set policy guardrails for their sustainability initiatives.

The fanfare surrounding Generative AI has also made its way to the Control Tower market, and vendors are racing to implement the technology into their offerings. While still early, vendors typically gear generative AI towards descriptive and prescriptive analytic use cases. Generative AI can explain trends and alerts with natural language to help planners identify issues faster with less confusion. It is also used to build trust and drive adoption for AI automation, as it will explain system-generated resolutions with descriptions of its impacts and causal factors. In addition to the expected productivity and accelerated time-to-resolution benefits, Generative AI may clarify communication between trading partners, reducing misunderstandings and human error. For example, a delay with a tier-2 supplier

will be communicated to all affected parties with the same data and wording upon detection.

In this Technology Value Matrix, Nucleus assesses the Control Tower market based on the value customers realize from the product usability and functionality that vendors are delivering with their solutions (Nucleus Research V67 – Understanding the Value Matrix, April 2021). The Matrix is a snapshot of the market designed to help customers and prospects understand where vendors are differentiating in how they deliver value and where vendors are making significant product investments.

LEADERS

Leaders in the Value Matrix include Blue Yonder, e2open, Infor, Kinaxis, and One Network Enterprises.

BLUE YONDER

Blue Yonder is a leader in the 2023 Control Tower Technology Value Matrix. Serving the needs of global enterprises, Blue Yonder extends its expertise to various industries, including Consumer Goods, Manufacturing, Third-Party Logistics, Retail Hardlines, Grocery, High Tech, Consumer Electronics, Automotive/Industrial, Pharmaceutical, Consumer Healthcare, Hospitality, Food and Beverage, and Wholesale sectors. Blue Yonders' Luminate Control Tower solution provides organizations with a centralized supply chain view. This holistic view helps organizations visualize the entire flow of goods from suppliers to customers and facilitates the generation of actionable insights by connecting internal, partner, and third-party data streams into a unified data set. The control tower oversees corporate objectives, from increasing revenue and optimizing margins to refining inventory management, enhancing transportation and labor efficiency, and driving global sustainability initiatives. The Luminate Control Tower's capabilities extend beyond supply chain oversight, from orchestrating stakeholder collaboration to predictive risk management. It empowers users to monitor conditions across the network in near real-time, automatically alert them when disruptions occur, exchange perspectives and feedback with internal and external counterparts to accelerate time to resolution. For example, Blue Yonders' port congestion visibility feature allows organizations to view congestion based on Marine Traffic data. It shows demurrage charge details at each port and reports the number of inbound shipments, time spent by vessels at the port, and anchorage area. As more Blue Yonder microservices are deployed to natively run on the Snowflake Data Cloud, customers can expect data sharing across a network of suppliers, manufacturers, and carriers, which will

surface opportunities for streamlined collaboration without the heavy upfront integration work.

Product updates in the last 12 months:

- At ICON 2023, Blue Yonder announced its intention to invest up to $1B in product innovations over the next three years across its portfolio of products. This will re-platform Blue Yonders' end-to-end supply chain capabilities onto a cloud-native, low-code platform and be leveraged to launch our next-generation cognitive solutions. Blue Yonder now plans to build all of its applications natively on top of Microsoft Azure, utilizing the Snowflake Data Cloud, eliminating data silos, simplifying data management, and supporting inter- and intra-corporation data sharing.

- Blue Yonders' new, advanced ML algorithms leverage the latest deep meta-learning technology. They continuously learn and determine the best combination of demand factors from all available data, then serve up a set of optimized plans to review and select. This multi-tenant capability is now embedded in Blue Yonders' Machine Learning solutions.

- Blue Yonder integrates generative AI and large language models within the Luminate Platform(R), allowing users to query any underlying plan and data in natural language. The AI will guide decision-making, understand correlations in data, and automate processes determined by end users, unlocking performance and upleveling the user experience.

- In 2023, Blue Yonder introduced its latest addition to Luminate Control Tower, Risk Manager, which delivers customers a proactive approach to risk management. The Risk Manager feature is purpose-built to identify threats and vulnerabilities across the complex global supply chain network, including suppliers, ports, inventory locations, stores, cross-dock facilities, and other operating nodes. It gathers data from across a variety of locations, then takes this data and applies advanced predictive analytics, and assigns a risk score to each event – turning what once were invisible disruptions into predictable events.

- Blue Yonder announced its new cognitive planning suite that unifies supply chain planning, merchandising, and category management solutions. The unified planning solution harnesses information across systems and sources, streamlines interactions, and simplifies decisions to respond to business needs quickly. It leverages artificial intelligence (AI) and machine learning (ML) capabilities to automate scenarios, processes, and decision-making. This is made possible by the Snowflake Data Cloud, which unifies data across internal and external sources and delivers scalability to power the simultaneous execution of hundreds of scenarios.

- Blue Yonder launched its Warehouse Execution System, an intelligent cloud-native solution powered by Luminate Platform(R). It is equipped to unlock opportunities to maximize efficiencies for humans and machines and accelerate time-to-value across the warehouse. The solution combines Blue Yonders' Warehouse Tasking, Robotics Hub, and other advanced solutions, along with in-depth analytics and reporting capabilities.

- In 2023, Blue Yonder announced its Adaptive Fulfillment and Warehousing solution, a native SaaS solution suite designed to serve today's warehousing and store fulfillment operations with a scalable solution. These new domain-centric services allow customers to maintain high inventory accuracy with the speed and efficiency required to serve growing demand.

- Blue Yonder also launched its Yard Management solution. This intelligent SaaS solution is fully integrated with Warehouse Management Systems (WMS) and developed to monitor the movement of trailers in yard facilities to minimize complexities and human intervention as operational conditions and priorities change throughout the day. Yard Management extends and enhances yard capabilities by leveraging AI, ML, and machine vision for automation. Implementing machine vision and AI gives Blue Yonder customers an advantage in automation and tracking accuracy, opening opportunities to leverage these technologies in logistics management. This unlocks greater efficiency and visibility in the yard.

E2OPEN

E2open is a leader in the 2023 Control Tower Technology Value Matrix. Headquartered in North America with offices in Europe, Asia-Pacific, and South America, e2open caters to a variety of industries, including Consumer Goods (such as Apparel & Footwear, CPG, Food and Beverage, and Retail), Logistics and Transportation (including Ocean Carriers, Over-the-Road carriers, Air, and Rail), Manufacturing and Industrial sectors (encompassing Aerospace and Defense, Automotive, Oil and Gas, and Pharmaceutical), as well as Technology and Electronics. E2open's supply chain management platform encompasses Control Tower functions across distribution, planning, logistics, global trade, and supply. Through e2open's platform, customers harness data-driven insights, boost partner visibility, and streamline operations.

The foundation of the e2open platform lies in its planning, execution, and global trade applications, the Harmony Unified User Experience, and e2net Open Partner Network. Harmony normalizes internal and external data feeds to ensure operators and partners view and always collaborate on the same canonical integrated data model. E2net is a network of 450,000 manufacturing, logistics, and distribution partners that fosters efficient information sharing through reusable connections, enhancing network wide visibility and the formation

of new partnerships. Guided by Machine Learning algorithms and a large customer and partner data pool, e2open autonomously prescribes actions to mitigate detected disruptions, ensuring a resilient supply chain that withstands shortages and delays. E2open's supply sensing capability gauges material shortages and service shortfalls over time, across the entire supply chain, including internal and partner operations and materials in transit or stored at various nodes. E2open's Environmental, Social, and Governance (ESG) capability helps organizations reduce greenhouse gas emissions when booking transportation for any mode in any region. The capability enables shippers to compare carbon emissions for different carriers and routes, make ESG-informed decisions at the point of booking, and balance cost, lead times, and emissions when planning or executing freight moves.

Product updates in the last 12 months:

- E2opens new ability to allow multi-tier structured and unstructured collaboration across partners, creates autonomous decision-making capabilities by leveraging timely data from across the network, allowing supply chains to operate in a truly connected fashion and 'Move as one.' New updates to dashboards will allow users to identify potential duty savings from trade agreement utilization and autonomous decision-making capabilities for optimal transport carrier rate and route selection. Through NLP, users can learn from unstructured inputs (news, message, user reviews, emails, social media, etc.).

- Organizations can now gain visibility into potential disruptions caused by extreme weather conditions that might impact global orders and shipments and serialized inventory tracking to minimize waste and obsolescence in the channel. This update will allow organizations to comply with the latest sanctions to protect companies from trading controlled goods, such as advanced semiconductors, with sanctioned countries or transacting with entities connected to human rights violations

- In 2023, e2open deepened its network coverage across all supply chain applications, firstly with updates to its analytics capabilities organizations to better align rebate and incentive programs with corporate goals, helping increase returns on channel investments. New AI transparency reports reduce human bias and accelerate the adoption of artificial intelligence by explaining reasons for automated decisions in easy-to-understand language. Carrier discoverability and enhanced visibility into late deliveries enable shippers to mitigate transportation risks and avoid on-time-in-full (OTIF) penalties. New supplier ESG analytics, support for the latest European Union Customs and US PGA filings, and more updates, to keep supply lanes open and goods flowing worldwide.

INFOR

Infor is a leader in this year's Control Tower Value Matrix, recognized for the Infor Nexus Control Center. On a global scale, the vendor provides services to the Consumer Goods, Aerospace and Defense, Automotive, Technology, Manufacturing, Energy and Natural Resources, Hospitality, Healthcare, Financial, Construction, and Distribution industries. The Infor Nexus Control Center is a platform for organizations to orchestrate supply chain management across global multi-enterprise operations. Nexus visualizes the whole supply chain in real time by enrolling trading partners to the nth tier via one-to-many connections. Infor Nexus improves and automates Control Tower decision-making by providing predictive insights, intelligent decision assistance, and collaborative execution. Control Center expedites transportation processes, modifies procurement and distribution plans, and detects and responds to disturbances in real time. Infor distinguishes itself by combining the Infor Nexus network with Coleman AI to identify bottlenecks, predict exceptions, and propose remedies to match supply and demand while optimizing for profit and service levels.

Recent product updates and enhancements include:

- Infor Nexus released its first set of Standard Solutions for Supply Chain Visibility and Collaboration. These releases come automatically configured for standard use cases to accelerate the sales cycle and implementations, helping customers achieve rapid time-to-value and reduce deployment services costs.

- Infor Nexus released No-Event Detection Alerts and Situations so users can set alert triggers if a process does not occur as expected. Leveraging process mining to identify patterns and variations across order and shipment lifecycles, Infor's no-event monitoring situations include missed transship, missed depart at port of load, excessive dwell at port of discharge, and missed vendor booking.

- Infor Nexus now provides enhanced visibility to the first mile of international transportation, granting shippers visibility to when goods leave supplier origin, flow through a CFS, and onward to port. This development covers a typical blind spot to when the movement of goods is covered by the Seller's contract term. This visibility allows users to address delays and shortages earlier in accordance with their agreements with shippers.

- Infor Nexus introduced Harbor Dwell Analytics, providing users with metrics that inform on average dwell times and trends at the port of load and discharge and dwell through the terminal. Visibility to harbor dwell times can inform potential delays in off-loading due to vessel backlog and potential for demurrage if terminal dwell is near or exceeds negotiated free days. These insights allow companies to manage available dray and truck capacity earlier to mitigate disruptions.

- Infor Nexus implemented a new data platform that provides a single architecture to manage customer and network data, ensuring all analytics, data science, and benchmarking projects utilize the same data engine. This development will allow users to leverage common analytic datasets across user and business applications, allowing users and applications to access operational and historical insights in real-time.

- Control Center now has embedded operational analytic dashboards. Users can configure dashboards of mission critical analytics and metrics and click on transactional data to take action where needed quickly.

- Infor Nexus enhanced and expanded its data quality tools with monitoring technologies to detect network-wide data quality issues. This development has surfaced issues with some carriers' source systems, allowing those carriers to repair issues and restore data quality for Infor customers and the broader shipping community.

KINAXIS

Kinaxis is recognized as a leader in the 2023 Control Tower Technology Value Matrix. The vendor delivers various supply and demand planning, S&OP/IBP, inventory management, and command & control solutions for customers in the automotive, aerospace and defense, consumer goods, high-tech, industrial, life sciences, and retail verticals. Kinaxis Command & Control Center, the control tower solution, bridges supply chain planning and execution by integrating internal and partner data streams, assisting organizations in risk mitigation, delay and stockout monitoring, and planning and execution orchestration. Utilizing the RapidResponse platform, users have the capability to automatically modify production, distribution, inventory, and financial plans in response to disruptions as they happen. Planners are also equipped to formulate automated decision triggers that bring actionability to supply chain decisions, built around both internal and external indicators. The platform is also complemented by various pre-configured API connectors, facilitating seamless integration with third-party applications commonly employed by supply chain partners.

Over the past year, Kinaxis has continued to invest in ongoing research and development to extend the value proposition of its supply chain planning platform.

- Enterprise Scheduling functionality allows companies to create and manage globally integrated production schedules that account for all plant layouts.

- Integrated Supply Chain Execution capabilities (formerly MPO) combines transportation management, order management, and returns management with Supply Chain Planning. This comprehensive approach enables organizations to

orchestrate supply chain activities from the planning phase through to delivery, whether handling multi-year or down-to-the-second execution processes.

- Sustainable Supply Chain allows companies to bring emissions data into their Kinaxis RapidResponse platform to design scenarios that will project and simulate supply chain-related environmental impacts in real-time. This creates visibility into emissions data and empowers planners to understand the impact of their plans.

- Kinaxis RapidResponse is now available on the Google Cloud Marketplace and the Microsoft Azure Marketplace.

ONE NETWORK ENTERPRISES

In this year's Control Tower Technology Value Matrix, One Network Enterprises is recognized as a leader for its Control Tower solution and comprehensive supply chain management platform, NEO Platform. One Network caters to various sectors including Aerospace and Defense, Automotive, Manufacturing, Consumer Goods, Healthcare & Pharmaceuticals, High Tech, Food and Beverage, Hospitality, Retail, and Humanitarian Aid. The NEO Platform encompasses Supply Chain Planning, IBP/S&OP, WMS, TMS, OMS, and Control Tower functionalities, as well as an SDK for developers and NEO Plasma for "citizen developers." The platform is differentiated by its many-to-many network foundation that integrates thousands of customers, suppliers, distributors, and carriers.

One Network's Intelligent Control Tower predicts and monitors for exceptions across the supply chain ecosystem, automates NEO-generated prescriptive decisions, and updates plans and execution tasks in real-time. The native connectivity between the control tower, planning, and execution solution enables operators to plan and optimize upstream and downstream activities across their entire supply chain from a single application view. The Intelligent Control Tower is underpinned by a unified platform and a single data model that incorporates the data stream from the multi-partner network. Furthermore, the platform is differentiated by collaborative data sharing, autonomous decision-making, machine-learning-driven decision help and control. Users can employ NEO's intelligent agents to automate various supply chain operations and incorporate external information into their decision-making processes. The Developer Network provides the ability to adapt and develop multi-party applications within the NEO Platform for individuals seeking customization.

Recent product updates and enhancements include:

- The incorporation of Natural Language generative AI, accelerating user adoption by producing autonomous prescriptions with contextual instructions.

- A Constrained Order Promising feature, allowing users to identify constraints swiftly and optimize order commitments based on business rules, revenue, service, or ESG criteria.

- Updates to Control Tower: Scenario Chains and Live Chains. The Live Chain acts as the primary execution plan, while Scenario Chains serve as "what-if" analysis tools, enhancing automation and efficiency across the supply chain.

- The expansion of S&OP with Global Scenarios, enabling current and future built engines to participate in scenario modeling, both inside and outside S&OP.

- Enhancements to the Value Chain Data Warehouse (VCDW), expanding its capacity with new data fields and offering democratized analytics in line with its NEO Plasma' vision.

- NEO Plasma's latest release improves integration pipelines, promotes rapid UI onboarding, and accelerates integrations.

- OMS/Inbound Supply Order Expedite Workbench enhancements increase its reach with new Smart Prescriptions for multi-tier order expediting.

- The vendor announced the addition of Carbon Reporting, extending CO2 data analytics from Logistics to Order Management, allowing various stakeholders to act on this data.

- Several WMS updates introduce features like package and storage constraints, warehouse capacity reporting, and refined inventory unit cost calculations.

- New detailed tracking for Production Orders, enabling OEMs to view contract manufacturers' site resource capacity.

- One Network announced the integration of WhatsApp with the NEO Platform.

- The vendor announced enhancements to the Network Bill of Materials (BOM), offering detailed change subscriptions and a new approvals framework.

- One Network announced the introduction of Hyperbots, starting with the Carrier Confirmation Hyperbot that utilizes user behavior for continuous ML improvement.

- The vendor announced Rail Integration to their NEO Platform, aiming for a comprehensive supply chain "peripheral nervous system."

- One Network announced Demand Planning improvements, expanding forecast types and capabilities, thus fostering closer collaborations with customers.

- The vendor announced the Autobot data collection feature, a customizable tool for automated data collection from various network participants.

- One Network announced Value Chain Data Warehouse (VCDW) Enhancements, creating a centralized data set for master and transactional data, optimizing planning, and execution for clients.

- The vendor announced the launch of the Transportation Forecasting Workbench, a tool integrated with One Network's planning suite for logistics activities.

- One Network announced enhancements to Spares, Maintenance, Repairs, Overhaul (SMRO), improving asset maintenance schedules, warranty integration, and introducing new Smart Prescriptions and UI widgets.

EXPERTS

Experts in the Value Matrix include o9 Solutions and SAP.

O9 SOLUTIONS

In this year's Control Tower Technology Value Matrix, o9 Solutions is recognized as an expert. o9 Solutions, a prominent supply chain planning vendor, serves major organizations worldwide, with clients in industries such as automotive, aerospace and defense, consumer goods, energy, food and beverage, high-tech, manufacturing, medicine, life sciences, pharmaceutical, retail, transportation, and telecommunications. o9 Solutions provides a dedicated Control Tower solution that allows clients to monitor demand, supply, inventory, and orders in real time. By integrating with IoT streams, trading partners, and transportation visibility platforms, o9 Control Tower grants customers real-time detection of disruptions, early warnings to potential stockouts or delays, and the use of AI/ML for exception resolution, with the goal of matching demand and supply at acceptable service levels and profit margins. One of the most important aspects of o9 is its support for integrated business planning (IBP), bridging supply chain, production, and financial factors for ease of collaboration. By combining supply chain planning, control tower, and IBP functionality, o9 equips its users with the capability to dynamically modify supply chain plans and inform execution.

Recent product updates and enhancements include:

- o9 Solutions announced the generation of alerts using ML/AI and oT augmented transaction inputs for various supply chain aspects.

- The vendor announced an Event Management feature to assign, track, and manage alerts related to external events across the organization.

- o9 Solutions announced Scenario Planning capabilities, providing both manual and auto-resolution options for user alerts.

- o9 Solutions announced an implementation-friendly modular product construction approach.

- o9 Solutions announced that existing investors, including General Atlantic's BeyondNetZero, have increased their investment, leading to a company valuation of $3.7 billion.

- The vendor announced that this valuation reflects an increase from $2.7 billion since the last investment round in January 2022.

- o9 Solutions announced an expanded partnership with Genpact to offer Planning-as-a-Service using Generative AI to enhance supply chain efficiencies.

- The vendor announced its AI-powered planning platform aimed at optimizing supplier collaboration through real-time bi-directional engagement.

- o9 Solutions announced an enhanced partnership with project44, integrating its Supply Chain Control Tower with project44's logistics data to help clients identify and mitigate supply chain risks.

- o9 Solutions, in collaboration with Samsung SDS, announced the launch of Nexprime SCM Mobile, an advanced mobile experience of its Digital Brain platform, targeting a broader user base and offering capabilities like collecting hyperlocal events for AI demand planning.

SAP

SAP is identified as an expert in the 2023 Control Tower Technology Value Matrix, primarily catering to large global organizations across various sectors, including energy, finance, consumer goods, aerospace and defense, automotive, technology, manufacturing, healthcare, and government. Through its SAP IBP solution, SAP delivers control tower functionality, facilitating Sales and Operational Planning (S&OP), forecasting, demand and supply planning, and inventory optimization. SAP IBP can be deployed on the SAP HANA Platform and can integrate with SAP IoT for analytics and SAP Ariba for supply chain collaboration. To gain a more complete view, the solution can access data from various sources, including enterprise resource planning (ERP) systems, transportation management, advance planning and optimizer (APO), as well as third-party and external systems. SAP's ongoing investment in machine learning technology manifests in features designed to generate user decision recommendations. This is complemented by decision-making support, collaboration capabilities with external trading partners, and alert mechanisms based on exceptions to business rules.

Notable product updates from the past year include:

- On March 8th, 2023, SAP announced SAP Datasphere, the next generation of SAP Data Warehouse Cloud built on the SAP Business Technology Platform (SAP BTP). This service enables organizations to build a business data fabric, giving customers improved access to business data held within SAP and third-party applications. This service also enables data practitioners to easily distribute data across the data landscape with preserved logic and business context.

FACILITATORS

Facilitators in the Value Matrix include Alloy, Coupa, and Elementum.

ALLOY

Alloy is recognized as a facilitator in this year's Control Tower Technology Value. Its Connected Planning & Execution Platform caters primarily to global retail organizations, including sectors such as consumer electronics, food and beverage, automotive, beauty and wellness, sporting goods, and clothing. At the core of Alloy's offerings lies its control tower functionality that provides real-time alerts and inventory visibility. With visibility to wherever inventory is and connection to up-to-date demand signals, users streamline decision-making across the various nodes of their supply chain. By harmonizing internal ERP data with retailer and distributor information, Alloy facilitates collaboration across disparate teams and trading partners by utilizing a unified dataset. The Alloy Data Platform empowers early detection of inventory-related risks and fluctuations in consumer demand, allowing organizations to avoid and mitigate the impact of disruptions. The platform enables Point-of-Sale driven demand forecasts, enabling users to monitor performance against anticipated customer demand and inventory benchmarks.

Product updates in the last 12 months include:

- On April 27th, 2023, Alloy announced new demand planning and inventory control features tailored to consumer brands. The launch unveils a Launchpad with pre-configured workflows and dashboards, enabling the transformation of diverse data into actionable insights for sales growth, waste reduction, and cost savings. Newly introduced dashboards provide insights into POS sales trends, lost retail sales, excess inventory, and performance versus plan.

COUPA

This year's Control Tower Technology Value Matrix includes Coupa as a facilitator. Coupa provides software services to businesses of all sizes in the Oil and Gas, Technology, Retail, Public Sector, Manufacturing, Media, Financial, Life Sciences, Insurance, Healthcare, Food and Beverage, and Consumer Products industries. Organizations can use the Coupa Control Tower to design and change supply chain structures, policies, and processes on a consistent basis. Its patented algorithmic engines are used to analyze supply chain models. Through scenario modeling, a company using Coupa may confidently answer complex supply chain problems. Users can also utilize Coupa to respond to supply chain interruptions, uncover potential risks, and optimize supply chain performance by leveraging AI-enhanced decision-making.

Recent product updates and enhancements include:

- At the Inspire BSM community conference, Coupa unveiled new platform updates for supply chain improvements. The CFO Dashboard gives finance leaders a clear view of spending transactions and trends, with actionable recommendations for better cash flow and savings. The AI-driven Supply Chain Prescriptions help users select optimal supply chain strategies for savings and sustainability. Purchase Order Collaboration ensures clearer communication between buyers and suppliers for efficient order handling. Parallel Approvals speed up purchasing processes. The Scope 3 Travel Emissions Dashboard tracks business travel carbon emissions, and expanded Supplier Diversity Data helps companies meet their supplier diversity objectives.

- On February 28, Coupa Software confirmed the conclusion of its acquisition by the prominent software investment firm, Thoma Bravo. The all-cash deal is valued at around $8.0 billion, with a notable minority investment coming from a subsidiary of the Abu Dhabi Investment Authority (ADIA). This acquisition agreement, announced earlier on December 12, 2022, received the green light from Coupa's stockholders during a special meeting on February 23, 2023.

ELEMENTUM

Elementum is placed as a facilitator in this year's Control Tower Technology Value Matrix. The vendor focuses on serving global enterprises of diverse scales across industries such as Pharmaceutical, Consumer Goods, Chemical, Food and Beverage, and Technology. Through the Elementum Orchestration platform, the vendor empowers customers to combine both internal and partner data streams, enabling real-time supply chain visibility and coordinated planning processes with suppliers, logistics, and manufacturers. A key feature of Elementum's offering is its ability to align data across each network instance,

giving users a single source of truth. This integrated ecosystem is not confined to data alignment; it also facilitates users in predicting potential supply chain disruptions by accessing various external data streams. These encompass aspects like commodity prices, order status, product availability, geopolitical events, and weather. Elementum's core value proposition lies in its cloud-native architecture and integrated approach, ensuring all stakeholders have real-time access to data across their enterprise and partner networks. Such a comprehensive approach caters especially to companies prioritizing a low total cost of ownership and rapid time-to-value. This is further complemented by Elementum's support for integration-free deployments, instant provisioning, and no-code administration, reflecting a cost-efficient strategy tailored to contemporary supply chain demands.

Notable announcements from the past 12 months include:

- On February 17th, 2023, Elementum launched its Data-Driven Workflow Platform on Snowflake's Data Cloud. The partnership will allow joint customers to create automation across Inventory Management, Merchandising Optimization, Logistics, Risk Management, and more as Snowflake ingests and normalizes data from various source and partner systems. With easy access to their data on Snowflake, joint customers can also automate BI processes to convert data into insights.

- On June 27th, 2023, Elementum announced the availability of License Patrol, an IT spend optimization application that runs natively on Snowflake. Co-developed by Elementum and Snowflake, License Patrol will help users optimize their SaaS licensing spend by providing visibility to SaaS usage, allowing IT teams to detect underutilization automatically.

CORE PROVIDERS

Core providers in the Value Matrix include Elemica, ShipitSmarter, and Viewlocity.

ELEMICA

In this year's Control Tower Value Matrix, Elemica is recognized as a core provider. Elemica works with businesses of various sizes worldwide. With its SCP solutions, the vendor serves the chemicals, oil and gas, pharmaceutical, and automotive industries. Elemica's Buy, Sell, Move, Assure, and See solutions provide control tower functionality. Customers can use Elemica to connect with their supply chain partners and traditionally siloed departments, digitize and automate supply chain processes, eliminate data silos, and deliver real-time updates. Elemica is frequently chosen by customers because of its integration with carriers to enable automated transportation management and transparent dock scheduling. Elemica

uses supplier connections to give customers supplier intelligence, accelerate procure-to-pay, and provide supplier QA/QC documentation to support planning and procurement. Customer connection solutions help Elemica users automate the order-to-cash process by digitizing the order management tasks, eliminating manual order entry, centralizing order documentation, and keeping customers informed of updates and milestones.

Recent product updates and enhancements include:

- On October 20th, 2023, Elemica announced that the U.S. Patent and Trademark Office (USPTO) issued Notices of Allowance for patent application no. 2018-0357585, titled "System and Method for Supply Chain Management." This patent application encompasses technology that can analyze various data streams as a single data point. With this advancement, combined with Elemica's existing technology, clients can monitor real-time supply chain processes, including procurement, logistics, and financial flows. The technology permits the merging of individual data streams into one unified point, offering system-agnostic compatibility and ensuring visibility isn't limited to specific systems. Elemica now holds a total of 13 patents, emphasizing its commitment to intellectual property development and enhancing supply chain resilience for its clients.

SHIPITSMARTER

ShipitSmarter is a core provider in the 2023 Control Tower Technology Value Matrix. The supply chain vendor provides solutions to small-to-midsized Medical, Technology, and pharmaceutical businesses. ShipitSmarters Fulfillment Control Tower technology provides a range of solutions covering carrier and freight management, financial oversight, fee and rate administration, reverse logistics, data management, and the management of shipment lifecycles. ShipitSmarter integrates with various systems, including ERP, WMS, and trade compliance platforms to help organizations enhance visibility across the shipment processes, optimize inventory management, and reduce operational costs.

ShipitSmarter transportation management solution covers booking, label printing, track & trace, fee and rate management, and financial management to ensure efficient and cost-effective movement of goods. ShipitSmarter's freight audit capabilities offer a systematic approach to cost reduction in shipping operations. The platform uses a 3-way matching concept to evaluate incoming carrier invoices against contracted agreements, factoring in performance, invoiced rates, and service levels. This ensures payments are aligned with delivered services, eliminating unnecessary expenses. An attribute of ShipitSmarter is its 600+ carrier connections, specifically with European shipping carriers. Combined with its carrier management capabilities, it offers a data-driven approach to selecting the right carriers. Leveraging integrated data connections with international, national, and local carriers, ShipitSmarter facilitates seamless order handling and efficient communication. The

platform features an automated alert system that promptly notifies users about any deviations related to shipping costs, service levels, weight dimensions, and delivery timelines. Users are also empowered to visualize their supply chain through user-friendly dashboards. These visual aids support immediate evaluations and long-term strategic planning efforts.

VIEWLOCITY

Viewlocity is a core provider in this year's Control Tower Technology Value Matrix, providing control tower capabilities and real-time insights into the supply chain. Insights into potential exception events allow planners to take proactive approaches to eliminate bottlenecks, facilitate stakeholder collaboration, and promote operational flexibility for a more efficient Supply Chain process. The vendor's customer base spans several sectors, catering to organizations of varying sizes across aerospace and defense, automotive and industrial, consumer goods, technology, manufacturing, retail, and third-party logistics industries. One of the reasons customers often look to adopt Viewlocity is its utilization of lean Six Sigma methodologies. This approach enables organizations to improve productivity while curtailing errors and waste within the supply chain process. Further enhancing its offerings, Viewlocity allows customers to forge connections between inventory and asset management and collaborative planning, forecasting, and replenishment software. Such integration not only elevates operational performance and customer satisfaction but also reduces corporate expenditures.