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RESEARCH

Control Tower Technology Value Matrix 2025

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The Bottom Line

In 2025, Control Tower Technology is becoming a focal point for investment as organizations face tariffs, currency swings, rising transportation costs, and labor shortages that strain global networks. Vendors are approaching the market in different ways: some deliver overlay solutions that unify visibility across existing Enterprise Resource Planning (ERP), Transportation Management System (TMS), and Warehouse Management System (WMS), and planning solutions, while others embed Control Tower Technology into broader supply chain platforms, with a subset pushing toward convergence that connects planning and execution in one environment. Artificial intelligence is a major driver of development, with specialized agents now supporting monitoring, supplier messaging, scenario analysis, and maintenance, though adoption remains cautious where governance and data quality issues persist. At the same time, regulatory requirements such as the Uyghur Forced Labor Prevention Act (UFLPA) and the EU Deforestation Regulation are forcing companies to extend supplier traceability to the nth tier, while risk dashboards increasingly integrate external signals like weather, ESG, and geopolitical events. These developments are making Control Tower Technology more operationally relevant, delivering measurable ROI by reducing manual effort, accelerating response times, and strengthening resilience across supply chain operations.

Market Overview

In 2025, organizations continue to face supply chain disruption from tariffs, shifting trade policies, currency volatility, and geopolitical instability. Rising transportation and energy costs, along with persistent labor shortages in logistics, planning, and manufacturing, add further strain. These pressures are pushing companies to invest in automation and decision-support tools that can manage global networks with fewer resources and greater precision.

Organizations face ongoing disruption from tariffs, trade shifts, labor shortages, and rising costs, making Control Tower Technology a focal point for investment.

At the same time, adoption of real-time data-sharing platforms and scenario-modelling tools is accelerating as firms look to anticipate shocks rather than react after the fact. Demand for visibility is also driving uptake of supplier-contract and performance tracking tools, pushing risk management deeper into the supply base. AI is moving beyond pilots into applied use cases such as demand forecasting, route optimization, and risk analytics. This reflects a broader shift toward agility-first practices where data and technology form the backbone of resilience. Against this backdrop, Control Towers have become a focal point for investment, giving organizations a single environment to monitor, analyze, and act across their networks.

At its core, Control Tower technology is designed to gather and visualize supply chain data, analyze the effects of disruptions across interconnected areas, and provide actionable recommendations before problems escalate. Comprehensive Control Tower solutions monitor networks from multi-tier suppliers to last-mile delivery, offering real-time insights into production schedules, inventory levels, and shipping statuses. This visibility reduces silos and improves collaboration with trading partners. For example, when transportation delays or supplier disruptions occur, a Control Tower solution can prioritize affected orders, simulate response scenarios, and recommend actions such as rerouting shipments or adjusting production schedules. Advanced analytics also support network design optimization, helping companies weigh the impacts of alternative routes, product mixes, or supplier options.

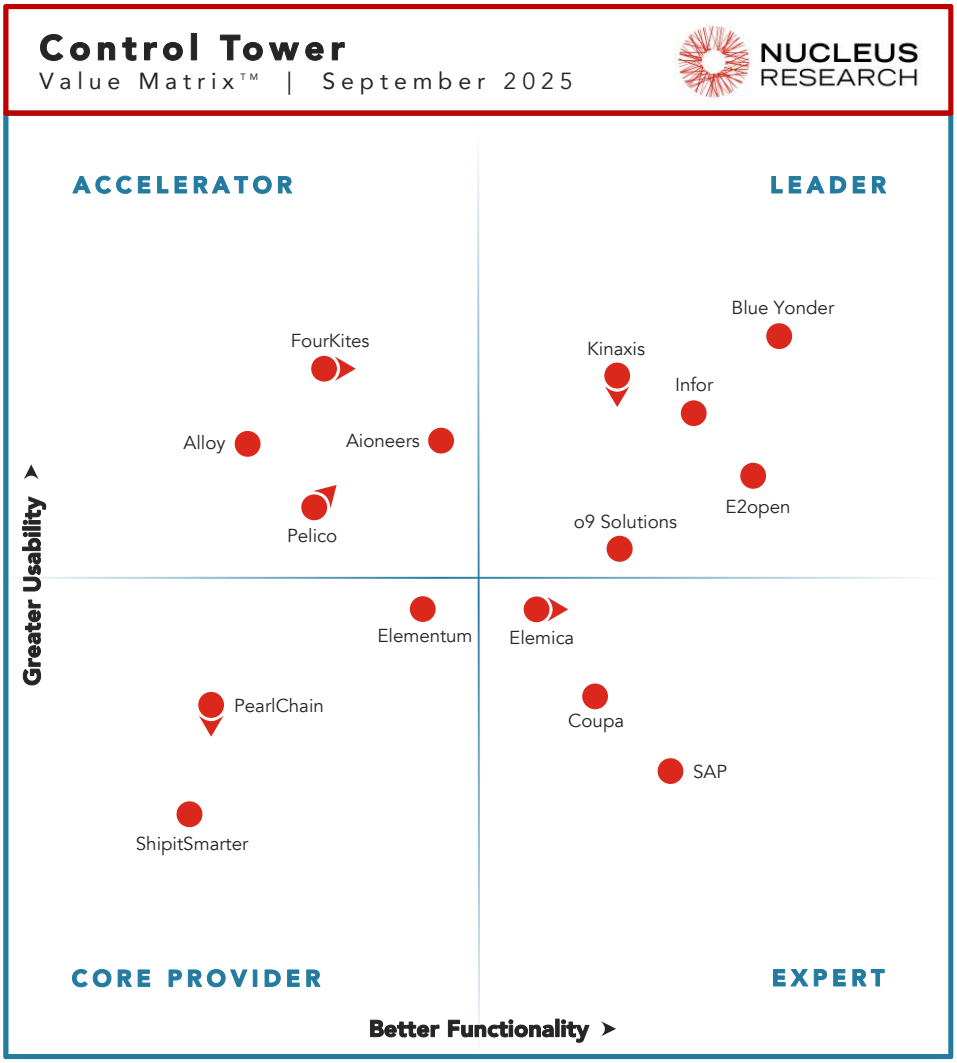
Control Tower technology provides a single environment to monitor, analyze, and act across global supply chain networks.

How vendors deliver these capabilities differs. Some solutions act as overlay tools, sitting on top of ERP, TMS, WMS, and planning systems to unify visibility without displacing existing investments. Others embed Control Tower Technology functions directly into broader supply chain platforms, where orchestration is integrated alongside planning and execution modules. Overlay tools often appeal for speed and simplicity.

Platform-based approaches emphasize depth and the ability to trigger actions across connected applications.

Control Tower Technology is still split between those with a planning focus and those centered on execution. Both remain common, reflecting different customer priorities. At the same time, a subset of vendors are moving toward convergence, positioning their Control Towers as orchestration hubs that connect planning and execution in a single environment. These offerings aim to align long-term planning with real-time operations. In practice, this includes integrations between TMS and order management, supplier collaboration within workflows, and corrective-action tools that tie quality management to logistics. Logistics orchestration is also advancing, with predictive ETAs, dynamic scheduling, and carrier collaboration extending Control Tower functionality beyond simple shipment tracking.

Planning-focused and execution-focused Control Tower solutions remain common, but a subset of vendors are converging both in orchestration hubs.



Alongside these structural shifts, vendors are investing heavily in artificial intelligence. Specialized agents are being introduced for different roles. Network agents monitor flows, flag disruptions, and sometimes resolves exceptions automatically. Buyer- and transportation-focused agents provide contextual insights into orders and shipments, recommending reroutes or reprioritizations. Planning and design agents model supply chain networks or digital twins and run simulations on sourcing or routing strategies. Analytics and knowledge agents handle queries, producing charts, metrics, or quick answers on company-specific policies. In asset-intensive industries, maintenance and shopfloor agents track equipment health, schedule preventive work, and reallocate production when failures occur. Quality-focused agents review exceptions, recommend remediation, and link findings directly into corrective-action systems.

AI agents are emerging for roles such as operations monitoring, planning, supplier messaging, maintenance, and quality management.

Adoption is advancing, but hesitancy remains. Many organizations are reluctant to let AI handle complex workflow decisions with financial or regulatory consequences. Limited in-house expertise, poor data quality, and weak governance frameworks add further friction. For narrower tasks, such as supplier messaging, inventory tracking, or service scheduling, agents are already cutting manual effort and shortening resolution cycles. Natural-language interfaces reinforce this trend by letting planners query systems directly. For example, a planner can ask, "Which shipments are at risk of delay due to weather in Asia this week?" and receive an immediate answer. Scenario modelling is also gaining importance as companies face tariff and trade uncertainty. What-if analysis allows them to test supplier switches, cargo reroutes, or schedule changes and weigh trade-offs before acting.

Visibility into supplier networks is expanding as well. Going beyond tier-one suppliers is not new, but regulations such as the UFLPA, the EU Deforestation Regulation, and digital product passports are forcing companies to extend traceability to the nth tier. Vendors are responding with stronger mapping tools and compliance reporting embedded into Control Tower workflows. Risk and resilience remain priorities. Dashboards increasingly integrate external data sources on weather, geopolitical events, and ESG violations, scoring potential impacts and guiding response planning. This lets companies identify which orders or facilities are most at risk and assign mitigation tasks directly through the system. Carbon accounting and ESG tracking, once add-ons, are now standard in the visibility layer. Compliance automation, particularly for customs clearance and eInvoicing, is also being built into day-to-day workflows.

Regulations like the UFLPA and EU Deforestation are pushing companies to extend supplier visibility and traceability to the nth tier.

Taken together, these developments point to a market becoming more operationally relevant. Control Towers are being refined to address global supply chain pressures with deeper visibility, embedded compliance, and tighter links between planning and execution. For customers, the impact is practical: fewer manual processes, faster response times, and more consistent decision-making across networks. These improvements are translating into measurable ROI, as companies continue to use Control Tower Technology not only to drive efficiency but also to strengthen resilience in daily operations.

Control Tower Technology is delivering measurable ROI by reducing manual processes, improving response times, and strengthening resilience.

The Nucleus Research Control Tower Technology Value Matrix provides an assessment of the market based on how vendors deliver value to customers through the usability and functionality of their solutions (Nucleus Research x222 – Understanding the Value Matrix, December 2023). The research is intended to deliver a relevant snapshot of the Marketing Automation technology market, rather than serve as an empirical ranking of the vendors. The arrows indicate each vendor's perceived momentum and are informed through conversations with end users, recently released capabilities, features, and other areas of investment.

Leaders

Leaders in the Control Tower Technology Value Matrix include Blue Yonder, E2open, Infor, Kinaxis, and o9 Solutions.

Blue Yonder

Blue Yonder is placed as a Leader in the 2025 Control Tower Technology Value Matrix, recognized for the Blue Yonder Supply Chain Command Center. The platform serves a wide range of industries, including consumer goods, retail and hospitality, life sciences, automotive and industrial manufacturing, high-tech, logistics services providers, defense, and humanitarian aid.

Blue Yonder's Supply Chain Command Center integrates planning and execution on a unified platform.

At the core of the Command Center is the Blue Yonder Network, powered by the Blue Yonder Platform, a many-to-many (hub-to-hub) ecosystem of more than 150,000 trading partners. This network enables collaboration, orchestration, and adaptive execution across suppliers, carriers, distributors, and customers. The foundation includes the Command Center itself, the Multi-Party Ecosystem, and the Network Ops Agent, helping organizations see, analyze, decide, and act on disruptions. The Command Center fits within Blue Yonder's end-to-end portfolio, which spans planning (demand and supply) and execution

(transportation management), ensuring that insights and decisions flow naturally across the supply chain.

Blue Yonder runs its control tower on a multi-party network of 150,000+ partners for real-time collaboration.

On top of this network foundation, the Supply Chain Command Center provides optimized execution, examining demand, inventory, and capacity at rest and in motion while extending beyond the enterprise to identify and act on chokepoints in operational flow. The platform makes prescriptive decisions through a machine learning recommendation engine that monitors anomalies across the ecosystem and instantly adjusts plans and tasks for execution. Operators can plan and synchronize upstream and downstream activities across multiple tiers of their supply chain from a single application view because of the integrated Blue Yonder Platform connecting the Control Tower, planning, and execution solutions. A common data model and unified platform consolidate the data streams from the multi-party network to support this visibility.

Additional differentiators include cooperative data sharing, embedded scenario planning, machine learning–powered decision support, and configurable automation. Users can integrate external data into decision-making processes and apply intelligent agents to automate tasks. Current AI agents support areas like risk, and inbound supply, while within the logistics framework, Blue Yonder has introduced an AI Agent for shipment consolidation based on container utilization. The platform also includes a natural language chatbot that enables multi-modal and multi-nodal interactions, fusing data from transactions and external sources to support problem-solving. Configurable widgets provide data visualizations and auto-generated actionable prescriptions when intervention is required. For organizations that want tailored processes or to apply their own data science, the Developer Network allows building and modifying multi-party applications within the platform.

Blue Yonder strengthened its foundation with a common data model, single sign-on, and two-factor authentication.

Recent updates and announcements include:

- **Unified Platform and Network Foundation.**
  Blue Yonder has strengthened its Supply Chain Command Center with a unified platform and network foundation that delivers a secure, consistent, and connected backbone for collaboration across supply chain stakeholders. This includes a common data model and integration framework that simplifies interoperability with a single connection point, streamlining time to value. Enhancements such as a harmonized user interface, single sign-on, and advanced security protocols, including enterprise-wide two-

Blue Yonder introduced multi-enterprise ticketing for cross-company issue tracking and collaboration.

factor authentication and FedRAMP compliance, ensure both usability and trust. Supporting this is a modernized integration architecture, featuring improved data pipelines with visual debugging, synchronous message handling, and embedded large language model functionality. Additionally, network intelligence has been bolstered by features such as conversational AI agents for natural language navigation, entity resolution improvements for cleaner data onboarding, and a next-generation value chain data warehouse that delivers real-time, scalable analytics.

Blue Yonder expanded capacity management with dynamic shift planning and automated approval workflows.

- **Supply Chain Planning Enhancements.**

  The platform's planning capabilities now support real-time, multi-enterprise orchestration of supply, demand, and production. A new collaboration framework introduces multi-enterprise ticketing, enabling cross-company visibility and communication with inline chat, role-based access, and alerts. Multi-tier planning capabilities extend visibility into third-party production issues, capacity constraints, and geographic exception monitoring, while new heatmaps make it easier to triage inventory risks. Capacity collaboration tools allow enterprises to manage worker groups and assets through dynamic shift planning orchestration. Approval workflows are now configurable with advanced rules for hierarchical and automated decision-making. Buyers benefit from AI-powered order intelligence, smart order search, contextual risk insights, and enhanced procurement features such as blanket order scheduling. Enhanced order analytics, policy-driven quality inspections, and CAPA workflows with third-party collaboration ensure more precise orchestration across procurement and production lifecycles.

- **Logistics Intelligence and Execution.**

  On the logistics side, Blue Yonder has scaled its Global Logistics Gateway (GLG) to handle over 7.5 million shipments per month, with expanded carrier integrations and simplified onboarding through cloud-based EDI. AI assistants now support transportation managers with shipment execution, real-time map visualizations, and exception handling, while generative AI document parsing allows invoice PDFs and images to be automatically processed into records. Risk and disruption management has been enhanced through prescriptive recommendations for prioritization and rerouting, complemented by new 3D load building capabilities for trailers. Global ocean logistics functionality has been expanded with direct house bill of lading support and enhanced event tracking. Smart rate and bid management tools streamline RFQs and spot bidding, while

Blue Yonder added logistics features, including AI shipment assistants, 3D trailer load building, and automated invoice parsing.

sustainability is advanced through integrated carbon emissions tracking and reporting across carriers. Finally, synchronized execution features extend orchestration across Control Tower environments, linking multiple internal and execution external execution systems and shipment updates into one cohesive flow

Blue Yonder extended compliance with new chain-of-custody tracking, recall alerts, and asset monitoring.

- **Chain of Custody, Stock, Asset, and Risk Management.**

  Blue Yonder also introduced end-to-end improvements in trust, traceability, and compliance. The expanded chain of custody framework ensures transparent tracking of assets and logistics handoffs, complete with audit trails and automated alerts for recalls. Inventory management now leverages a mobile WMS app that supports real-time barcode-based operations, while advanced kit handling and recall visibility enhance warehouse agility. Asset management capabilities allow organizations to perform live tracking of assets in transit, link them directly to shipments, and orchestrate maintenance workflows with configurable approvals and reporting. Risk resilience has been reinforced by integrating third-party data from providers such as Interos and Everstream, allowing enterprises to visualize risks geographically and monitor potential disruptions. Smart dashboards, entity consolidation, and auto-approval policies enable faster mitigation of risk events, ensuring businesses can maintain continuity in increasingly complex supply chain environments.

E2open

E2open is recognized as a Leader in the 2025 Control Tower Technology Value Matrix. Headquartered in North America with offices across Europe, Asia-Pacific, and South America, the company serves a broad set of industries, including manufacturing (with high tech and industrial subsectors such as aerospace and defense, automotive, oil and gas, and pharmaceutical), logistics and transportation (ocean, over-the-road, air, and rail carriers), and consumer goods (apparel and footwear, CPG, food and beverage, and retail).

E2open's Control Tower is built on a unified platform that integrates planning, execution, logistics, trade, and supply functions.

The e2open Control Tower is built on a unified platform that integrates planning, execution, logistics, trade, and supply functions. Core components include the Harmony Unified User Experience, the e2net partner network, and a broad portfolio of applications for planning, distribution, and global trade. The platform normalizes data from both internal systems and external partners, enabling all stakeholders to work against a shared, integrated data model. E2net connects more than 500,000 partners across manufacturing, logistics, and distribution,

creating reusable connections that enhance collaboration, improve visibility, and speed up onboarding for new alliances.

E2open connects more than 500,000 partners through its e2net network, enabling collaboration across manufacturing, logistics, and distribution.

E2open's layered Control Tower capabilities extend beyond its main platform, with specific modules for risk, direct material, logistics, sourcing and production, and manufacturing. These capabilities allow organizations to anticipate and respond to disruptions by automatically detecting interruptions, measuring shortages and service gaps, and offering supply sensing insights across internal and partner operations. Recently, e2open added Supply Network Discovery, an application that enables brand owners to conduct multi-tier supplier discovery, relationship mapping, and BOM-level traceability. This functionality supports due diligence, risk mitigation, and compliance with ESG-driven regulations.

Sustainability is also embedded in the platform. E2open's ESG tools allow shippers to balance cost, lead times, and carbon emissions when planning transportation moves. Companies can evaluate carriers and routes for environmental impact, align freight planning with sustainability targets, and improve decision-making across global supply networks. In addition, new updates give users visibility into weather-related disruptions and provide improved serialized inventory tracking to reduce waste and obsolescence.

Most recently, e2open was acquired by WiseTech Global, adding further scale and resources to the platform's continued development.

E2open expanded Supply Network Discovery with multi-tier supplier mapping, BOM-level traceability, and compliance screening for UFLPA and EUDR.

Recent updates and announcements include:

- **Strategic Development Themes.**
  E2open's Control Tower enhancements are guided by five broader product development goals. The first priority is data, with improvements in collection, cleansing, and harmonization across planning and execution ecosystems. The second focus area is AI and innovative technology, which includes embedding AI/ML, generative AI, agentic AI, and digital assistants with greater configurability and scalability. Third, the company is emphasizing workflows by building multi-enterprise, cognitive workflows that capture institutional best practices and enable repeatable decision-making. Fourth, scenarios are being expanded into universal, connected models that support holistic optimization across planning workflows. Finally, the user experience is being standardized through a unified interface across applications, making it easier for users to adopt and improve productivity. Together, these priorities are reinforced by e2open's

90-day release cadence, which ensures consistent upgrades in visibility, orchestration, and intelligence across its platform.

- **Risk Assessment Framework (Network Discovery Enhancements).** E2open expanded its Supply Network Discovery (SND) tool to provide a more dynamic supply assurance and compliance framework. These updates enhance the system's ability to detect and manage risks across multiple supplier tiers. The solution now offers full visibility across first, second, and nth-tier suppliers, with instant propagation of risk events such as ESG violations or forced labor concerns. Real-time risk feeds from providers like Resilinc and Dun & Bradstreet are now integrated into dashboards that score severity and business impact. AI-driven classification capabilities automatically tag partners by risk profile and convert questionnaire responses into new supplier nodes, creating a living network model. Users can also navigate risks through a graphical workflow, moving seamlessly from event detection to remediation without losing context. Compliance screening is now embedded directly within the platform, allowing users to check restricted-party lists and regulations such as UFLPA and EUDR. These enhancements position SND as a core supply assurance component of the Control Tower, enabling proactive detection and remediation of systemic risks.

E2open integrated real-time risk feeds from Resilinc and Dun & Bradstreet, adding severity scoring and automated partner risk classification.

- **Control Tower Resolution Framework Enhancements.** E2open also strengthened the Control Tower's resolution framework to improve how organizations respond to disruptions. Enhancements to the resolution engine include decision-tree automation, milestone-based state transitions, and AI-assisted recommendations that guide users toward the most effective corrective actions. Resolution workflows are now linked directly to risk dashboards and ticketing systems, creating a closed-loop process from exception detection to resolution. Dashboards have been expanded to provide better visibility, with ticket management segmented by resolution type and improved logistics metrics covering origin, destination, demurrage, and detention. Personalized workspaces allow users to focus on the exceptions most relevant to their role. Finally, cross-functional collaboration has been expanded by linking visibility alerts to resolution tickets, enabling supply, logistics, and trade teams to work together on the same disruption. These changes reinforce the role of the Control Tower as not just a monitoring tool but as a resolution hub, where disruptions are triaged, prioritized, and acted upon in real time across the supply chain.

E2open strengthened its resolution framework with decision-tree automation, milestone-based workflows, and AI-assisted recommendations.

Infor

Infor is placed as a Leader in the 2025 Control Tower Technology Value Matrix, recognized for its Nexus Control Center. The vendor serves the following industries globally: consumer goods, fashion, retail, industrial manufacturing, automotive, electronics, logistics service providers, and distribution. Organizations can coordinate supply chain management across international multi-enterprise operations through the Infor Nexus Control Center. By enlisting trading partners through one-to-many links down to the nth tier, Nexus provides a real-time visualization of the entire supply chain. With collaborative execution, intelligent decision support, and predictive analytics, Infor Nexus enhances and automates Control Tower decision-making. Transportation processes are accelerated by the Control Center, which adjusts distribution and purchase schedules and instantly recognizes and addresses disruptions. Infor further differentiates itself by embedding AI into the Nexus network, enabling the platform to detect exceptions, identify bottlenecks, and suggest solutions to balance supply and demand while maximizing profit.

Infor's Control Tower solution is the Nexus Control Center, positioned as part of the Infor Nexus platform.

With visibility to the first mile of international transportation, shippers can monitor goods from supplier origin through CFS to port, allowing them to address delays and shortages earlier in the process. Harbor Dwell Analytics provides insights into average dwell times and port-level trends, supporting better dray and truck capacity planning to mitigate disruptions. Operational analytics dashboards embedded in the Control Center allow users to act quickly on critical metrics.

The product supports industries including consumer goods, fashion, retail, manufacturing, automotive, electronics, logistics, and distribution.

Infor continues to expand functionality with advanced monitoring and traceability tools. Users can deploy geo-fences around critical maritime chokepoints such as the Suez Canal, Red Sea, Panama Canal, South Indian Ocean, and Cape of Good Hope, enabling alerts when vessels enter prohibited zones, idle unexpectedly, or deviate from expected movements. The Network Dwell Map provides current harbor and discharge port dwell times based on global network data and a customer's own shipments, allowing companies to plan around congestion and benchmark performance against the wider Infor Nexus community. In addition, non-event detection capabilities highlight when expected activities fail to occur, helping users proactively intervene before disruptions escalate. The NexTrace product further strengthens compliance and transparency by mapping multi-tier supplier networks and tracing products across those tiers. This functionality supports documentary evidence for product claims and ensures organizations can respond efficiently to regulatory

requirements such as the UFLPA and support transparency requirements to meet the upcoming EU Digital Product Passport and other regulations.

Recent updates and announcements include:

- **Data Guardian.**
  Infor Nexus introduced Data Guardian, a data quality analytics solution that allows customers to monitor and improve data quality across their supply chain. The solution provides visibility into performance both across partners and in comparison to the broader network. Built on the platform's existing data quality foundation, it presents approximately 350 dimensions covering consistency, accuracy, and timeliness in a highly consumable format. This enables organizations to identify, compare, and address specific data quality issues with greater precision and efficiency.

Infor Nexus introduced Data Guardian, a data quality analytics tool with 350+ dimensions covering consistency, accuracy, and timeliness.

- **Multi-Tier Supply Chain Traceability.**
  Infor Nexus expanded its multi-tier traceability capabilities to enable comprehensive end-to-end tracking of products, from raw materials through every transformation step into finished goods and beyond. The system supports both backward and forward tracing to address regulatory requirements such as the EU Digital Product Passport. Lot and item-level tracking is enabled at scale through intelligent data mapping, ensuring data accuracy while minimizing supplier burden. ESG information, certifications, and compliance documents are fully integrated to provide a complete view of sustainability and supply chain transparency. A digital link can also be created to share traceability information directly with consumers, supporting transparency and engagement initiatives.

- **Prior Year Capabilities.**
  Last year, Infor Nexus enabled organizations to map multi-tier supplier networks and trace products backward from purchase orders and shipments to their source of origin. This allowed suppliers at multiple tiers to provide documentary proof of chain of custody. These capabilities supported compliance with regulations such as the UFLPA and helped validate product claims related to sourcing, origin, and sustainability.

Infor Nexus expanded multi-tier traceability to track products from raw materials to finished goods, supporting the EU Digital Product Passport and ESG reporting.

- **Multi-Tier Supply Network Intelligence.**
  Building on its traceability features, Infor Nexus now leverages supply chain tracing data to create a high-fidelity view of extended supplier networks. By actively tracing multi-tier connections and using graph

technology to correlate data from raw materials to finished goods, organizations gain deeper insights into supplier dependencies, production status, and potential risks. This expanded intelligence allows companies to build more connected, transparent, and resilient supply chains.

Infor Nexus added supply network intelligence using graph technology to expose supplier dependencies and risks across extended tiers.

- **Intelligent Data Mapping.**

  Infor Nexus has introduced intelligent data mapping that uses task-specific large language models, including vision-enabled models, to extract and map data into applications. Examples include ingesting Excel exports from supplier production systems to generate structured production data on the platform and converting certification data from PDFs into structured certificate data objects.

- **AI Updates.**

  Infor Nexus also embedded an AI Assistant designed to change how supply chain professionals interact with data and make decisions. The assistant accelerates task execution by answering user questions ranging from simple lookups to complex, cross-functional data queries. It delivers actionable summaries with built-in data visualizations and direct links to transactions, enabling faster and more confident decision-making. The assistant can also generate custom analytics, draft summary emails, and support workflows to boost productivity across the supply chain.

  Infor Nexus embedded an AI Assistant to answer queries, generate custom analytics, and support workflows with built-in visualizations.

  Infor Nexus is also developing specialized AI agents in close collaboration with customers to automate specific tasks and enhance intelligence across the platform. These agents proactively monitor data, surface exceptions, trigger workflows, and deliver role-specific insights. For example, inbound logistics analysts can use them to respond to delays, planners can balance supply and demand more effectively, and AP teams can resolve discrepancies to speed up payments. Each agent can be tuned for unique customer needs, and organizations will also have the option to create their own. By working alongside digital assistants, these agents will drive continuous optimization, responsiveness, and efficiency across supply chain operations.

o9 Solutions

o9 Solutions is placed as a Leader in the 2025 Control Tower Technology Value Matrix, recognized for its Digital Brain platform. The company serves organizations across automotive, aerospace and defense, consumer goods, energy, food and beverage, high-tech,

manufacturing, life sciences, pharmaceuticals, retail, telecommunications, and transportation industries.

o9 Solutions delivers its control tower through the Digital Brain platform, embedded in its broader planning and analytics suite.

The o9 Control Tower enables organizations to track orders, inventory, supply, and demand in real time, while providing early warnings of possible delays, shortages, or disruptions. By integrating IoT streams, trading partners, and transportation visibility platforms, the solution delivers disruption detection, event management, and AI/ML-driven exception resolution. At its core, the Control Tower is embedded within o9's Supply Chain Planning & Analytics foundation, where it leverages real-time visibility and operational planning capabilities to match supply and demand at service levels and profit margins aligned with business goals.

Beyond operational planning, o9 extends its Control Tower through Integrated Business Planning (IBP), which unifies financial, commercial, and supply chain plans to align decisions across time horizons. Its Demand Planning capabilities strengthen resilience with collaborative forecasting, demand sensing, and scenario modeling to anticipate shifts in customer needs. Underpinning these capabilities is the Digital Twin, which mirrors the supply chain network and integrates multi-tier supplier data to improve transparency, risk management, and scenario analysis. Together, these building blocks make o9's Control Tower a central enabler of agile, integrated, and data-driven supply chain orchestration.

Recent updates and announcements include:

- **AI Updates.**

  Over the past 12 months, o9 Solutions has invested heavily in AI agents that let a single planner influence a broad set of decisions through natural language. Users can now run what-if simulations, assess demand supportability, and weigh financial trade-offs conversationally, which fundamentally changes how cross-functional teams interact with information and drive faster, higher-quality decisions within o9's Supply Chain Control Tower.

o9 introduced AI agents that let planners run what-if simulations, test demand supportability, and weigh financial trade-offs via natural language.

- **Continuous quarterly releases and scope.**

  Recent updates expand both master and operational planning to improve end-to-end visibility and responsiveness. Enhancements in areas such as Advanced MRP, multi-echelon inventory optimization (MEIO), and retail replenishment improve short- and mid-term planning precision, enabling the Control Tower to surface earlier signals, quantify impact, and recommend executable responses.

- **Execution-adjacent orchestration.**
  The platform now offers deeper integration points that bridge planning and execution through Supplier Relationship Management and next-generation procurement, along with integrated order promising. These capabilities allow the Control Tower to coordinate supply commitments with real-time constraints, align suppliers to projected demand shifts, and translate resolution decisions into consistent downstream actions.

- **Sustainability and risk responsiveness.**
  Sustainability features have been broadened so planners can incorporate environmental metrics alongside service, cost, and inventory goals. Combined with the expanded planning toolkit, the Control Tower can better monitor disruptions, evaluate trade-offs that include ESG considerations, and orchestrate mitigations that balance resilience with performance.

o9 expanded master and operational planning with enhancements in Advanced MRP, multi-echelon inventory optimization, and retail replenishment.

Kinaxis

Kinaxis is placed as a Leader in the 2025 Control Tower Technology Value Matrix, recognized for its Maestro Platform. The vendor supports customers in the automotive, aerospace and defense, consumer goods, high-tech, industrial, life sciences, and retail sectors with capabilities spanning supply and demand planning, S&OP/IBP, inventory management, production planning and scheduling, transportation management, order management, and advanced command-and-control functionality.

The Kinaxis Maestro Platform combines planning and execution, giving organizations a single environment to manage supply, demand, inventory, production, logistics, and orders.

The Maestro Platform serves as both a planning and execution environment, bridging traditional silos through end-to-end visibility and orchestration. By combining internal and partner data sources, the platform enables organizations to manage risk, monitor delays and stockouts, and synchronize planning with execution in real time. Maestro delivers advanced control tower functionality, allowing users to detect disruptions as they occur and automatically adjust production, inventory, distribution, and financial plans accordingly. Planners can configure automated decision triggers based on internal or external signals, turning insights into actionable responses at scale. Pre-configured API connectors further simplify integration with partner systems, while Enterprise Scheduling supports globally integrated production schedules across diverse plant layouts.

The Maestro platform is also built with an AI-first architecture, incorporating generative AI, multi-agent frameworks, automation tools, and rules-based engines within a unified supply chain data fabric. This

structure enables predictive and prescriptive insights, advanced scenario modeling, and continuous orchestration across B2B, B2C, and D2C supply chains. Its sustainable supply chain feature allows planners to integrate emissions data directly into decision-making, simulating environmental impacts alongside operational tradeoffs. Maestro is available on both Google Cloud and Microsoft Azure Marketplaces, ensuring global scalability and security.

The supply chain management vendor launched a Tariff AI Tool to model trade impacts and recommend strategies in response to shifting tariffs.

- **Kinaxis Maestro updates.**
  Over the past year, Kinaxis has introduced a series of major product announcements aimed at expanding its role as a leader in supply chain orchestration and execution. In June 2024, the company launched Kinaxis Maestro, an AI-powered orchestration platform designed to deliver end-to-end transparency and agility. Maestro spans the entire supply chain, from multi-year strategic planning through last-mile delivery, embedding advanced computational technologies to support dynamic decision-making.

- **Enhanced integration with supply chain execution capabilities.**
  Kinaxis strengthened its position by integrating supply chain execution capabilities directly into its Maestro platform. By embedding transportation management, order management, and returns management, Kinaxis bridged the traditional divide between planning and execution, enabling users to operate with real-time visibility and coordination across the value chain.

- **Enterprise Scheduling release.**
  To support complex manufacturing environments, Kinaxis introduced enhanced enterprise scheduling capabilities that allow businesses to build globally integrated production schedules. This update accounts for diverse plant layouts and operating constraints, helping organizations create feasible and efficient scheduling strategies across their manufacturing networks.

Kinaxis recently partnered with Databricks to improve large-scale data processing for real-time planning accuracy.

- **Tariff AI Tool.**
  In April 2025, the company addressed global trade volatility with the launch of an AI-powered tariff response solution. This functionality helps organizations adapt quickly to shifting tariffs and trade disruptions by modeling the impacts and recommending responsive strategies.

- **Databricks Partnership.**
  Kinaxis expanded its Maestro platform through a strategic partnership with Databricks, enabling customers to leverage

Databricks' Delta Sharing and Data Intelligence Platform to process structured, semi-structured, and unstructured supply chain data at scale, improving real-time planning accuracy across diverse sources like IoT, weather, and social media. The Databricks collaboration allows Kinaxis customers to choose where and how data analysis occurs, either through native Kinaxis pipelines or directly within Databricks. This reduces the need to extract and transform external datasets, with these enhancements expected by end of Q3 2025.

Kinaxis announced a Multi-Agent Framework that lets users configure AI agents with natural language prompts, improving explainability and adoption.

- **Catena-X Certification.**
  Kinaxis achieved Catena-X certification, cementing its leadership footprint in the automotive value chain and demonstrating its commitment to industry standards and interoperability.

- **Multi-Agent Framework.**
  Kinaxis announced its Multi-Agent Framework in June, giving users the ability to configure AI agents using simple natural language prompts, define agent behaviors, and control access to relevant datasets without developer intervention, with general availability targeted for Q4 2025. The Multi-Agent Framework is designed to increase adoption and trust by enhancing AI explainability, allowing users to understand how forecasts or alerts are generated and tailor agent actions to specific business contexts.

Experts

Experts in the Control Tower Technology Value Matrix are Coupa, Elemica, and SAP.

Coupa

Coupa is placed as an Expert in the 2025 Control Tower Technology Value Matrix. Coupa supports organizations within the oil and gas, technology, retail, public sector, manufacturing, media, financial, life sciences, insurance, healthcare, food and beverage, and consumer products industries.

Coupa combines procurement orchestration, supplier collaboration, and risk management in a single environment.

Coupa enables organizations to respond dynamically to supply chain disruptions through scenario modeling and AI-enhanced decision support. Users can identify risks, evaluate mitigation strategies, and optimize policies to improve resilience and sustainability. Coupa's Supply Chain Collaboration tools extend visibility and coordination across trading partners, covering purchase order collaboration, forecasting collaboration, and inventory collaboration. Control Tower capabilities are reinforced through Coupa's procure-to-pay

orchestration, which integrates intake data, policy display, budget visibility, contract compliance, and purchase order tracking. The platform also incorporates Community Insights from the Coupa Community Network, which connects buyers and suppliers (transaction and supply chain data) to enhance decision-making with network-driven recommendations. By combining procurement orchestration, network design, supplier collaboration, and real-time risk management, Coupa delivers an integrated Control Tower solution that links financial and operational signals to enable organizations to reduce costs, strengthen compliance, and adapt to volatility across global supply chains.

Coupa launched the Tariff Impact Planning (TIP) app to model trade scenarios, assess tariff exposure, and optimize sourcing and logistics strategies.

Recent updates and announcements include:

- **Tariff Impact Planning (TIP) App.**
  In August 2025, Coupa introduced its Tariff Impact Planning (TIP) application as part of its Supply Chain Solutions suite. This tool is designed to help businesses address the growing uncertainty around global trade policies and tariffs. TIP enables leaders to proactively build tariff-optimized supply chains by modeling various scenarios, assessing current networks, and identifying alternative strategies to balance cost, service, and risk. With features such as layered tariff evaluations, duty drawback analysis, and market access assessments, the app allows organizations to understand the full financial implications of tariffs across sourcing, production, and logistics. In practice, this means companies can anticipate cost increases, evaluate contingency options, and maintain profitability even during prolonged trade disruptions. Customer testimonials highlight TIP's ability to model risks with granularity down to transportation lanes, providing greater resilience against challenges like port strikes or global canal disruptions.

- **Inspire 2025: AI Agents and Autonomous Procurement.**
  At the Inspire 2025 conference in Las Vegas, Coupa unveiled a series of new AI agents and capabilities aimed at building an autonomous procurement and supply chain management ecosystem. At the center of this initiative is Navi, Coupa's AI assistant, which has been expanded into the main engagement layer for the company's agentic AI framework. The new agents include early access supply chain agents for network modeling and digital twin scenario building, alongside generally available agents for analytics, document discovery, and organizational knowledge queries. These agents are designed to automate repetitive tasks, reduce manual effort, and support proactive decision-making across procurement and supply chain workflows. Supporting these capabilities, Coupa introduced

Smart Intake & Orchestration, which allows businesses to map and orchestrate their processes directly within the platform. This ensures that AI agents follow trusted workflows, strengthening customer confidence in automation. The company also expanded supplier collaboration features to include inventory visibility, enabling buyers and suppliers to collaborate in real time on stock management and replenishment.

Coupa expanded Navi into the central AI assistant, now serving as the main interface for its agentic AI framework.

Elemica

Elemica is placed as an Expert in the 2025 Control Tower Technology Value Matrix, recognized for its multi-enterprise digital supply chain network and network-enabled SaaS solutions that serve as the foundation for its Control Tower capabilities. Elemica supports organizations across chemicals (petrochemicals, specialty chemicals, and agricultural chemicals), food and beverage, life sciences, high-tech, consumer goods, tire and rubber, and automotive industries.

The Elemica platform connects Customers, suppliers and Logistics Service Providers across order management and collaboration, quality assurance, invoice management, multi-carrier shipping execution, and logistics and transportation management, powered by the Elemica network which enables Elemica's Reporting, Analytics & Insights layer. Key modules include Sales Order Management, Purchase Order Management, Forecast Collaboration, Vendor Managed Inventory, Quality Certification Management, Invoice Automation, eInvoice Archiving, eInvoice Compliance, ProcessWeaver Cloud Platform, ProcessWeaver for SAP, Transportation Management, Appointment & Dock Scheduling, Freight Audit, and Terminal & Warehouse Execution. Elemica also provides advanced real-time transportation visibility (RTTV), reporting, analytics, and insights, allowing customers to identify bottlenecks, reduce inefficiencies, and respond proactively to disruptions. These solutions, supported by the Elemica iFlowFabric, form the company's integrated Control Tower framework, enabling customers to orchestrate supply chain activities across their partner ecosystem.

Elemica delivers control tower capabilities through its multi-enterprise digital supply chain network and SaaS platform.

Elemica's network includes more than 44,000 connected enterprises, facilitating over 1.2 million daily transactions across global supply chains. The company's ecosystem of partners enhances its Control Tower capabilities. Technology partners include AWS, Oracle, SAP, Infor, and Microsoft; data partners include SOVOS, Workato, AWS, and Marine Traffic; and network partners include FedEx, UPS, DHL, SAP Ariba, and Shippeo.

The Elemica network connects more than 44,000 enterprises and processes 1.2 million transactions daily.

Recent updates and announcements include:

- **Order Management to Invoicing.**
  Elemica introduced a GenAI-enabled order automation capability that applies large language models to digitize and automate long-tail, non-standard order formats, such as those received via PDF, Excel, or email. While Elemica supports multiple enterprise-class ERPs, RISE with SAP S/4HANA integration certifications have also been made available for Elemica's Sales Order Management & Collaboration solution. The company also released a forecast collaboration tool that allows trading partners to share and align supply forecasts, complementing existing order management and vendor-managed inventory solutions. Expanded eInvoicing compliance was added, with broader country-specific coverage, digital signatures, and archiving functionality. In addition, Elemica announced an integration with Agilis' ionicPIM, which streamlines product data flow across the order lifecycle by enabling centralized product specifications, regulatory documentation, real-time order validation, and synchronized updates. This integration also improves error-resistant order creation and speeds onboarding and catalog updates for digital commerce.

Elemica launched GenAI-enabled order automation to digitize non-standard orders from PDFs, Excel, and email.

- **Reporting and Analytics.**
  The launch of Elemica Insights introduced an interactive analytics module that includes productized scorecards for carriers, suppliers, and customers, along with tools for analyzing network utilization and trading partner activity. In addition to pre-built dashboards, the solution provides configurable data analysis and visualization capabilities that support customer-driven use cases. This development enhances operational intelligence, enables benchmarking of partner performance, and supports strategic collaboration across the supply chain.

- **Platform Enhancements.**
  The platform was strengthened through the introduction of certified connectors, including SAP ERP connectivity and multi-carrier parcel execution, which improve interoperability and accelerate deployments. Elemica also released self-service onboarding tools with low-code configuration and simplified trading partner setup. Security was enhanced through centralized authentication and access management within the Elemica ID Portal, which also supports single sign-on, multi-factor authentication, and OAuth 2.0. The addition of master data management capabilities ensures normalized and trusted data streams across partner interactions,

Elemica added forecast collaboration tools and expanded eInvoicing compliance with broader country coverage and digital signatures.

forming a foundation for planning systems and digital twins. This includes support for third-party data from integrated partner solutions. Continuous updates were also made to expand the range of structured and unstructured connection methods and data protocols supported.

Elemica expanded logistics visibility with Shippeo integration, CO_2 emissions tracking, dwell time metrics, and predictive ETAs.

- **Logistics and Transportation.** Elemica expanded its logistics capabilities through a certified integration with Shippeo, providing real-time transportation visibility to complement native shipment tracking. The company added enhanced ESG and performance metrics, including CO_2 emissions calculations, dwell time measurement via geofencing, and shipment KPIs such as on-time delivery and per-carrier performance metrics. AI and machine learning enhancements were also introduced to deliver predictive ETAs, optimize routing guide logic, and improve inbound and outbound planning across all transportation modes, from parcel to freight.

SAP

SAP is placed as an Expert in the 2025 Control Tower Technology Value Matrix, recognized for its SAP Supply Chain Control Tower. The company supports large global organizations across industries, including energy, finance, consumer goods, aerospace and defense, automotive, technology, manufacturing, healthcare, and government.

SAP's Supply Chain Control Tower is delivered primarily through SAP Integrated Business Planning (IBP).

The SAP Supply Chain Control Tower provides advanced forecasting, demand and supply planning, sales and operations planning (S&OP), and inventory optimization, primarily through SAP Integrated Business Planning (IBP). Built on the SAP HANA platform, it integrates with SAP Ariba for supply chain collaboration and SAP IoT for analytics, while also drawing from SAP ERP, APO, Transportation Management (SAP TM), and Warehouse Management (SAP EWM) systems. These connections enable a unified view of operations and allow users to run scenario simulations, interpret real-time analytics, and generate AI-supported recommendations. Intelligent Visibility provides transparency across multi-tier supply networks, while Case Management and dynamic alerts powered by machine learning help organizations track, resolve, and continuously improve supply chain processes.

SAP also offers a Sustainability Control Tower.

SAP further strengthens its Control Tower offering through Business Network Collaboration, enabling real-time engagement with external trading partners, and through embedded functions such as ratings, comments, and procedure playbooks to institutionalize best practices. On the execution side, SAP TM and SAP EWM integrate seamlessly to

extend visibility and orchestration into logistics and warehouse operations, ensuring synchronization between planning and execution layers of the supply chain.

The product integrates with SAP Ariba, SAP TM, SAP EWM, and SAP IoT for end-to-end supply chain visibility and orchestration.

In addition to operational visibility, SAP offers the Sustainability Control Tower, which centralizes ESG data from SAP and non-SAP systems. This platform supports compliance with frameworks such as TCFD, ISSB, and CSRD, enabling organizations to measure actual greenhouse gas emissions, track supplier diversity metrics, and benchmark progress toward long-term sustainability goals. Customizable dashboards and automated reporting further reduce manual effort while embedding sustainability insights into daily decision-making.

Accelerators

Accelerators in the Control Tower Technology Value Matrix are Aioneers, Allow, FourKites, and Pelico.

Aioneers

Aioneers delivers control tower functionality through the AIO Platform, built on Microsoft Azure and Databricks.

Aioneers is placed as an Accelerator in the 2025 Control Tower Technology Value Matrix, recognized for its AIO Platform. aioneers provides Control Tower support to mid-sized to large organizations in the automotive, manufacturing & equipment, consumer products, and pharmaceuticals & life science industries.

The vendor's AIO Supply Chain Control Tower addresses complex supply chain challenges by integrating data from disparate systems, providing organizations with cross-functional supply chain transparency. The platform enables organizations to attain a single supply chain point of truth by integrating various data sources and mirroring the network's physical assets within the AIO Data Foundation. Additional tools available on the AIO platform include Supply Chain Performance (inventory and product performance), supply chain planning, and Supply Chain Resilience (root cause analysis and performance prediction). The AIO Platform is built on Microsoft Azure and Databricks, and leverages Qlik and PowerBI for Control Tower dashboards. Together, these capabilities give organizations near real-time insights into supply chain operations, from customer demand to tier-x suppliers.

At the core of its platform, aioneers has established the Closed-Loop Problem-Solving paradigm, consisting of four steps: Analyze, Decide, Act, and Learn. Analyze, where the system identifies problems and their causes; Decide, where decision support tools generate and select optimal actions based on the analysis; Act, where these decisions are

executed, ranging from short-term optimizations to long-term improvements; Learn, where the outcomes are evaluated, providing insights that improve future problem-solving. Incorporating this closed-loop methodology allows organizations to react to disruptions and adapt without extensive operator training. This continuous improvement cycle is crucial for maintaining efficiency and resilience in today's dynamic supply chain environments.

The AIO Control Tower applies a closed-loop problem-solving cycle of Analyze, Decide, Act, and Learn to manage disruptions.

Recent updates and announcements include:

- **AI Updates.**

  Over the last 12 months, Aioneers has deployed its Artificial Supply Chain Intelligence (ASCI) platform to multiple clients. ASCI enhances the AIO Supply Chain Control Tower (SCCT) by automating problem-solving with an agentic AI system. The system uses a graph database for short-term memory and OpenAI's LLM for natural language understanding. Pilot implementations revealed that generative AI tended to hallucinate when context became too extensive. To address this, Aioneers integrated a Supply Chain World Model and a Causal AI platform that captures supply chain entities, relationships, objectives, constraints, and KPI driver trees.

  Aioneers launched its Artificial Supply Chain Intelligence (ASCI) system, combining generative AI for interfaces with causal AI for explainable decision support.

  The updated architecture distinguishes between natural language processing and true supply chain intelligence. Generative AI is now used primarily for user interfaces, while core intelligence relies on causal AI and encapsulated neural networks operating within the World Model. This design provides more consistent, explainable, and context-aware decision support. A first pilot project is currently underway with a global food and beverage producer, where ASCI is automating root cause analysis of performance issues and predicting outcomes of disruptions such as late supply or capacity shortages. Additional projects are planned in the automotive and industrial equipment sectors.

- **Vendor Managed Inventory.**

  Aioneers has also introduced an automated Vendor Managed Inventory (VMI) replenishment engine within the SCCT. A European packaging material producer required this capability to replenish five VMI locations at a global FMCG manufacturer. By connecting the manufacturer's five plants to the AIO SCCT platform, the VMI engine now generates daily replenishment orders. These orders are then reviewed and approved by material planners, streamlining the replenishment process and reducing manual effort.

  Aioneers integrated a Supply Chain World Model and graph database to improve context handling and reduce AI hallucination.

- **Machine Learning Updates.**

  The third enhancement to the SCCT is the launch of the AIO Machine Learning (ML)-based Forecasting Engine. This engine extends the platform with scalable forecasting capabilities for all time series data, including customer demand, raw material consumption, and distribution center replenishment.

  Key features include context-aware feature generation tailored to client data, integration of external demand signals, specialized techniques for handling irregular demand, reinforcement learning from planner feedback, and automated SKU segmentation based on demand profiles. In addition, the engine provides intelligent model selection and large-scale hyperparameter tuning. These capabilities collectively improve forecast accuracy, adaptability, and automation within the SCCT.

Aioneers added a Machine Learning Forecasting Engine with external signal integration, irregular demand handling, and automated SKU segmentation.

Alloy

Alloy is placed as an Accelerator in the 2025 Control Tower Technology Value Matrix, recognized for the Alloy Launchpad product within the Alloy.ai platform. Alloy.ai is an AI-driven platform designed for consumer brands to centralize, analyze, and act on point-of-sale (POS), inventory, and supply chain data. The Launchpad serves as a unified hub with preconfigured dashboards and guided workflows that bring together data from retail, ecommerce, and ERP systems in real time. This enables supply chain teams to track sales and inventory performance, identify trends, monitor promotions, reduce out-of-stocks, and make more informed replenishment decisions.

The platform includes retail data connectors spanning retailers, 3PLs, ERP systems, data warehouses, BI tools, and demand planning applications. Its revenue intelligence tools analyze POS trends, sell-through against plan, promotional effectiveness, and cross-retailer performance, while its supply chain visibility features cover inventory status, phantom stock, warehouse fluctuations, allocations, and excess. AI capabilities integrate these data streams to detect issues, extract insights, improve forecasting, simulate scenarios, and automate replenishment recommendations. With more than 350 retailer and partner integrations, supported by technology partnerships with AWS, Snowflake, Databricks, Google Cloud, and Microsoft, Alloy provides a connected planning and execution environment tailored to global retail supply chains.

Alloy delivers control tower capabilities through the Alloy.ai platform, with the Launchpad product as the central hub. The platform integrates with 350+ retailers, 3PLs, ERP systems, and data warehouses, with partnerships spanning AWS, Snowflake, Databricks, Google Cloud, and Microsoft.

Product updates over the last 12 months:

- **CloudPaths Partnership.**
  Alloy.ai announced a partnership with CloudPaths, an expert SAP partner, to help consumer products companies transform supply chain planning with real-time data integration. By combining CloudPaths' SAP expertise with Alloy.ai's ability to tap into real-time data from retailers, e-commerce platforms, and distributors, this collaboration enables businesses to sense demand shifts with greater accuracy. Supply chain and demand planning teams can now forecast and deploy inventory with improved precision by harmonizing data from diverse third-party sources. The result is more accurate demand planning, faster decision-making, and increased agility to respond to changing market conditions. Together, Alloy.ai and CloudPaths are offering consumer brands a practical and powerful solution to enhance their competitiveness in dynamic markets.

Alloy launched its Data Platform on Snowflake Marketplace, enabling brands to ingest normalized POS and inventory data directly into Snowflake warehouses.

- **Launch of Alloy.ai Data Platform on Snowflake Marketplace.**
  Alloy.ai also launched its Data Platform on Snowflake Marketplace, creating a seamless way for consumer brands to ingest normalized, real-time sales and inventory data directly into their Snowflake data warehouses. This capability helps companies overcome the challenge of dealing with hundreds of retailers and distributors, each providing data in different formats and portals. With Alloy.ai, organizations can connect to more than 350 retailer integrations and automatically harmonize data by SKU, store, and day. This single source of truth allows for more accurate analytics, improved planning, and smarter replenishment decisions. Early adopters, such as Moose Toys, have already demonstrated the benefits of this integration by using Alloy.ai to streamline data ingestion and unlock new insights without the cost and complexity of traditional ETL approaches. By bringing together Alloy.ai's retail data expertise and Snowflake's AI Data Cloud, this launch empowers consumer brands to move faster, reduce operational friction, and make better-informed business decisions.

FourKites

FourKites is placed as an Accelerator in the 2025 Control Tower Technology Value Matrix, recognized for its Intelligent Control Tower platform. The company supports organizations across food and beverage, retail, consumer packaged goods, chemicals and oil and gas, manufacturing, pharmaceuticals, and logistics services industries.

FourKites delivers control tower capabilities through its Intelligent Control Tower platform.

The Intelligent Control Tower operates on three tiers. At the top is the Digital Workforce, a layer of agentic AI capabilities that includes

intelligent agents for track and trace, supplier collaboration, pickup and delivery scheduling, customer service, and document compliance. This is complemented by the Digital Twins framework, which creates real-time virtual counterparts for orders, shipments, assets, facilities (yard management), and inventory, enabling organizations to mirror their physical supply chains within the platform. Underpinning these layers is the Real-Time Network, which integrates FourKites' global real-time transportation visibility platform, ambient data such as weather and traffic, and core operational applications including ERP, WMS, and TMS. Together, these building blocks provide end-to-end visibility and context for decision-making across global supply chains.

FourKites supports organizations across the food and beverage, retail, consumer packaged goods, chemicals and oil and gas, manufacturing, pharmaceuticals, and logistics services industries.

Recent updates and announcements include:

- **The launch of the Intelligent Control Tower.**
  FourKites has introduced its Intelligent Control Tower, representing a major evolution from real-time transportation visibility into a full execution-centric platform. This system combines live connections from a shipper's tech stack with FourKites' network data, enriched by digital twins of shipments, orders, assets, facilities, and inventory. The platform uses these inputs to analyze disruptions in real time and determine the financial and operational impact. By connecting external signals, such as weather events, to internal supply chain objects, the Intelligent Control Tower helps prioritize responses and informs both digital agents and human teams.

- **Digital Workforce.**
  At the core of the Intelligent Control Tower is FourKites' Digital Workforce, a collection of purpose-built AI agents trained on more than a decade of supply chain experience and real-world use cases across 1,600+ brands. Unlike traditional automation or RPA, these agents act autonomously across multiple systems and channels to resolve disruptions in real time. Each agent, such as Sam, Tracy, Cassie, Alan, and Polly, can coordinate complex workflows that previously required large human teams, effectively reducing response time and effort in supply chain operations.

FourKites launched the Intelligent Control Tower, expanding from transportation visibility into a full execution-focused platform.

- **YardWorks AI.**
  FourKites has also launched YardWorks AI, a capability set designed to tightly integrate inbound and outbound logistics with warehouse operations. Historically, yard and site schedules were disconnected from broader supply chain processes, despite being highly influenced by external factors such as shipment arrival times and SKU demand. YardWorks AI closes this gap by enabling intelligent

automations like appointment rescheduling when ETAs change, as well as live trailer monitoring for more responsive inventory management.

FourKites introduced the Digital Workforce, a set of AI agents trained on real-world supply chain data to autonomously resolve disruptions.

- **FourSight and AI-Driven Analytics.**
  FourSight is another major advancement, enabling natural query language interactions for reporting and analytics. With FourSight, users no longer need advanced technical skills to generate meaningful analysis. For example, they can ask questions like "What is my current detention trend for my Romeoville, IL facility?" and receive a dynamic, visual dashboard within seconds. This democratizes data access and accelerates decision-making across organizations.

- **Ocean Disruptions Dashboard.**
  To address the growing frequency of geopolitical, labor, and weather-related disruptions, FourKites released the Ocean Disruptions Dashboard. This tool provides a real-time feed of global events alongside their direct impact on freight. Shippers can quickly see which shipments are affected and understand potential consequences for revenue, delivery schedules, or customer commitments, enabling a proactive approach to disruption management.

FourKites released YardWorks AI to integrate yard management with inbound and outbound logistics, adding features like appointment rescheduling and trailer monitoring.

- **Order Risk Dashboard.**
  FourKites also introduced the Order Risk Dashboard, which helps shippers who manage thousands of daily orders quickly assess the health of their supply chain. This dashboard consolidates key metrics such as on-time in-full (OTIF) rates, revenue at risk, and exception indicators. It provides clear, glanceable insights that highlight areas requiring human intervention and ensures that operations teams focus on the most pressing risks.

Pelico

Pelico is placed as an Accelerator in the 2025 Control Tower Technology Value Matrix, recognized for its Supply Chain Orchestration Platform industries designed for complex Bills of Materials industries such as Aerospace, Defense, Industrial Equipment's or Luxury watches. The platform is built on top of a supply chain digital twin that models supply, inventory, production, finished goods, and customer operations. From this foundation, Pelico delivers modular applications including Supply, Production Control, Maintenance (MRO), Planning and Inventory, supported by core services such as simulation, escalation management, alerts, and recommendations.

Pelico delivers its Supply Chain Orchestration Platform, built on a digital twin that models supply, inventory, production, and customer operations.

Pelico fits within the factory setting as the execution layer (S&OE), bridging corporate-level supply chain planning and factory execution. It connects to ERP systems (such as SAP, Oracle, and Infor) to anticipate upcoming disruptions, proactively take intelligent mitigation actions, simulate alternative scenarios, and foster cross-team collaboration.

The platform targets complex bill of materials industries such as aerospace, defense, industrial equipment, and luxury goods. The platform includes a Virtuous Data Hygiene Loop, improving data accuracy through continuous use and AI-assisted correction.

By covering the entire manufacturing process end-to-end, from sourcing to production and maintenance, Pelico enables discrete manufacturing organizations to improve OTD and TAT, closing the gap between strategic planning and day-to-day execution.

Pelico's Supply Chain Execution Platform intelligent agent connects people, processes, and data, turning challenges into opportunities. By orchestrating the entire supply chain and enabling AI-powered insight, Pelico helps get ahead of disruptions and meet revenue targets. Pelico algorithms, built on top of ERP data, provides real-time visibility into every disruption while its AI Agent provides recommendations and simulations to increase manufacturing throughput, enhance material availability, and reduce turnaround time.

By propagating insights instantly to the right teams, the orchestrator strengthens decision accuracy and collaboration. Pelico reinforces its orchestration capabilities with a Virtuous Data Hygiene Loop, where the platform surfaces inaccurate data, users, helped by AI Agents, clean and leverage this improved data for daily decisions, and performance improvements feed back into ongoing operational excellence. This loop ensures that data integrity continually strengthens over time, creating a more resilient and agile supply chain environment.

Updates over the last 12 months:

- **MRO Updates.**
  To improve Maintenance, Repair, and Operations (MRO), Pelico introduced a 360° dashboard that consolidates Service Orders, Purchase Orders, and Stock Transfer Orders into a unified interface. This single-screen view eliminates the inefficiencies of context switching and fosters real-time collaboration among teams. By bringing these functions together, the platform enables faster and more coordinated decision-making in critical operational processes.

Pelico introduced a 360° MRO dashboard that consolidates service, purchase, and stock transfer orders into a unified view.

- **Advanced Supply Chain Intelligence.**
  Pelico has rolled out several intelligent features to enhance supply chain visibility and decision support. Smart Material Coverage Filtering now proactively identifies inventory gaps and provides mitigation strategies before they cause disruption. The

Opportunities Tooltip has been expanded to recommend alternate parts alongside existing Stock Transfer and Rotables options, offering users more flexibility in managing shortages. Delivery visibility has also been improved with real-time tracking and predictive insights into the timing of upcoming deliveries. Collectively, these updates increase foresight and agility in day-to-day operations.

Pelico added smart material coverage filtering, alternate part recommendations, and predictive delivery visibility to improve supply assurance.

- **UX Updates.**
  Pelico has undertaken a major redesign of its interface, delivering a modern and intuitive user experience. The updated design features streamlined navigation, a responsive layout across devices, and a refined visual hierarchy that makes onboarding faster and more efficient. Users now benefit from deeper personalization, with the platform capturing routines and preferences to increase productivity. Enhancements to the Planning App provide quick access to event tables through filtered views, allowing seamless transitions between planning cells and detailed event information. In addition, the system now supports third-party integrations, Event Explorer functionality for navigating across linked events, and self-service extensibility of the data model so organizations can tailor the platform to their specific requirements.

- **Customer-Centric Innovation.**
  The platform has deepened its alignment with customer needs through highly tailored implementations. For example, Pelico delivered enhancements for Safran SEATS, which included multi-currency support, supplier data integration, custom field configuration, and comprehensive customer service request management. These customer-specific solutions highlight Pelico's ability to deliver advanced features without sacrificing scalability, ensuring that clients can adapt the platform to both immediate requirements and long-term business growth.

Pelico delivered customer-specific enhancements, such as multi-currency support and supplier data integration for Safran SEATS.

- **Future-Proof Agentic Digital Twin Platform.**
  Looking ahead, Pelico is evolving its platform into a next-generation agentic digital twin for supply chain orchestration. This transformation is being driven by strategic investments in data management, agentic frameworks, and algorithmic intelligence. The goal is to ensure that customers can manage rising complexity and volatility in global supply chains with precision and confidence. By positioning itself as a digital twin platform powered by AI-driven orchestration, Pelico is preparing organizations to stay resilient and competitive in a rapidly changing environment.

Core Providers

Core Providers in the Control Tower Technology Value Matrix are Elementum, PearlChain, and ShipitSmarter.

Elementum

Elementum is placed as a Core Provider in the 2025 Control Tower Technology Value Matrix, serving organizations in financial services, healthcare and life sciences, manufacturing, and retail. The vendor positions itself as an intelligent process automation platform that orchestrates people, rules, large language models, and AI agents without requiring data to be moved from an organization's warehouse. This enables data science and operations teams to build supply chain Control Tower applications by orchestrating workflows directly on their existing infrastructure.

Elementum delivers control tower capabilities through its Orchestration Platform, positioned as an intelligent process automation layer.

The Elementum Orchestration platform runs natively on Snowflake's Data Cloud, allowing customers to connect internal and partner data streams for real-time supply chain visibility. Its cloud-native design ensures synchronized data across all network instances, creating a single source of truth that enhances collaboration with manufacturers, suppliers, and logistics providers. Elementum also integrates external data sources such as weather, geopolitical events, commodity pricing, and order status, helping users anticipate disruptions and take corrective action. By leveraging Snowflake's data integration capabilities, Elementum's Data-Driven Workflow Platform enables automation across supply chain functions, turning complex datasets into actionable insights.

Recent updates and announcements include:

- **July 2025 Updates.**
  In July 2025, Elementum introduced several new features that enhanced automation, application design, and communication. Agents gained the ability to directly trigger automations through the new Run Automation Tool, significantly streamlining task execution. The App Create Wizard was updated to optionally set access policies, simplifying the setup process. On-demand automation triggers were introduced, allowing agents to execute deterministic workflows when needed. Additionally, users were given the ability to edit rich text fields directly from List View, making data updates more intuitive and efficient. A new Send Email Notification action was also added, enabling organizations to

The platform runs natively on Snowflake's Data Cloud, enabling real-time data orchestration without moving data out of customer warehouses.

automate custom emails with dynamic content for seamless communication.

Enhancements to application design included improved messaging capabilities, such as threading, reactions, and editing, which created a smoother communication experience. The platform also introduced greater visibility into record creation details and updates, allowing users to track changes more effectively.

Elementum launched AI agents with a natural language designer, integrated with Microsoft Teams for cross-platform workflows.

- **June 2025 Updates.**
  The June 2025 release marked a major milestone for Elementum with the introduction of AI agents. Users were now able to create and test AI agents in a natural language designer, assign them to assist fulfillers in workflows, and allow them to search, create, and update tools. These agents could leverage Cortex LLMs and were fully integrated with Microsoft Teams, enabling seamless interaction across platforms.

  Application design also advanced with the launch of App Health, a feature that allows users to quickly assess workflow health at a glance through a color-coded system indicating successes or errors. The AI File Reader was introduced, making it possible to extract and query data from files with highly customizable parameters. Broken value references and value reference validation tools provided users with new ways to identify and manage errors within automations.

  On the organizational side, Elementum added support for OpenAI GPT 4.1, expanding its AI capabilities. Application design enhancements also improved usability with layout previews that reduced clicks in data list views and upgraded trigger functionality, which included new options for deleting or replacing triggers.

- **May 2025 Updates.**
  The May 2025 release focused heavily on expanding automation and data design capabilities. A new feature enabled access to a user's manager information during automation creation, allowing workflows to dynamically incorporate managerial details such as email addresses for approval processes. The platform also introduced multi-select required picklists, which provided app creators with the flexibility to design many-to-many data relationships using either multi-select dropdowns or tables with dynamic filters. Another addition was the Unzip File Reader, which gave users the ability to configure automations that process zipped

files and reference each extracted file in subsequent automation steps.

In terms of organizational settings, Elementum added support for OpenAI GPT, continuing its trend of embedding advanced AI capabilities into its platform. Enhancements to application design allowed API requests to fail gracefully within workflows, ensuring errors could be managed elegantly. Automation metrics were streamlined by automatically saving during setup, removing unnecessary steps. New references were introduced for identifying the first and last iteration of loops, giving creators finer control over workflow logic.

Elementum also introduced App Health monitoring, an AI File Reader, and support for OpenAI GPT 4.1.

- **April 2025 Updates.**
  In April 2025, Elementum focused on expanding flexibility and user control within automation and application design. A SPLIT automation calculation was introduced, giving admins the ability to break down text values into lists for easier looping and processing. Approval workflows were enhanced with the addition of a configurable "Exception" option, allowing specific automated workflows to be triggered under exceptional circumstances. Furthermore, administrators gained the ability to lock user interactions on records while automations were running, improving clarity for end users.

  Organizational settings were also strengthened. Admins could now configure inactivity timeouts separately for desktop and mobile users, offering tailored session management. Additionally, Single Sign-On was expanded to support identifiers beyond email, such as employee numbers.

  Enhancements to app design included new trigger and action configuration options, such as click-to-add functionality for streamlined workflow setup. The end-user experience was refined with improved table row interactions, making navigation between record previews and details more intuitive. Finally, a new "Automations in Progress" indicator was introduced, providing real-time visibility into automations currently being executed on a record.

Across 2025, Elementum redesigned application features with improved messaging, layout previews, loop references, and real-time automation visibility.

PearlChain

PearlChain is placed as a Core Provider in the 2025 Control Tower Technology Value Matrix. The vendor supports organizations across

industries, including automotive, chemicals, textiles, consumer goods, and food and beverage.

PearlChain delivers a Control Tower platform designed to coordinate inbound, production, and outbound flows.

At the core of PearlChain's value proposition is its ability to coordinate inbound and outbound supply chain flows in and around the factory, ensuring production schedules remain on track. The company's name reflects its unique approach to flow management; each customer order is treated as a "pearl" that must be sequenced correctly to fulfill demand and meet expectations. While the platform was originally designed for production sequencing in the automotive sector, it has since evolved into a cross-industry solution that brings together planning, scheduling, and transportation execution within a unified Control Tower. PearlChain provides end-to-end, real-time visibility across inbound supplier shipments, factory production, and outbound customer deliveries. By issuing alerts when schedules are not met, the platform allows supply chain managers to steer flows proactively and minimize disruption. Customers have reported using the tower mechanism to manage inbound shipping, synchronize factory operations, and monitor outbound distribution from a single console, which improves both responsiveness and long-term planning.

Originally developed for automotive sequencing, PearlChain has expanded into chemicals, textiles, consumer goods, and food and beverage.

The platform incorporates advanced planning and scheduling capabilities that align production with business rules and customer commitments, as well as manufacturing operations management that connects production sequencing with warehouse execution. Its warehouse management and warehouse execution systems support efficiency within facilities, while integrated quality control ensures that production and logistics decisions are tied to accurate quality data. PearlChain's real-time inventory visibility function provides a consolidated view of stock across suppliers, production lines, warehouses, and outbound channels, enabling companies to detect shortages or excesses early and act decisively.

By combining planning, execution, and visibility, PearlChain enables organizations to balance agility and efficiency in highly dynamic environments. The platform improves service reliability, reduces costs, and provides companies with the ability to respond to change with speed and accuracy, establishing it as a proven Control Tower provider for both factory-centric and broader supply chain operations.

ShipitSmarter

ShipitSmarter is placed as a Core Provider in the 2025 Control Tower Technology Value Matrix, serving primarily small-to-midsized businesses across the medical, technology, and pharmaceutical sectors.

Its Fulfillment Control Tower provides capabilities spanning carrier and freight management, financial oversight, fee and rate administration, reverse logistics, data management, and shipment lifecycle management. The platform integrates with ERP, WMS, and trade compliance systems to enhance shipment visibility, optimize inventory management, and reduce operational costs.

ShipitSmarter provides a Fulfillment Control Tower targeted at small and midsized businesses in medical, technology, and pharmaceuticals.

ShipitSmarter's transportation management solution supports booking, label printing, track and trace, and financial management to streamline the flow of goods. Its freight audit functionality relies on a three-way matching process, evaluating invoices against carrier contracts while factoring in rates, performance, and service levels. This ensures payments align with delivered services and eliminates avoidable costs. With over 600 carrier connections, particularly in the European market, ShipitSmarter delivers strong carrier management capabilities that help organizations make data-driven selections.

The platform also offers automated alerts to flag deviations in shipping costs, service levels, dimensions, and delivery timelines, enabling users to quickly correct issues. Through visual dashboards, organizations gain end-to-end supply chain visibility, supporting both immediate operational decision-making and long-term strategic planning. Together, these features make ShipitSmarter a pragmatic Control Tower solution for SMBs seeking to strengthen logistics performance and financial discipline across their shipping operations.

Over 600 carrier connections, especially in Europe, give customers broad options for data-driven carrier selection.