

NUCLEUS
RESEARCH

Control Tower Technology Value Matrix 2026

ANALYST

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The Bottom Line

The control tower technology market is converging around a common goal of helping organizations identify supply chain issues sooner, understand their operational and financial impact, and respond faster. Vendors are approaching this from different starting points, including planning, execution, multi-enterprise networks, manufacturing, visibility, and decision intelligence, but the lines between these categories are becoming less distinct as platforms expand into adjacent capabilities. Customer adoption remains highly use-case driven, with organizations prioritizing measurable operational problems and ROI tied to reducing disruption costs, backorders, inventory exposure, customer escalations, and manual exception work. At the same time, control tower maturity is increasingly defined by decision velocity, or how quickly an organization can move from a relevant signal to an informed and executable response. AI is accelerating this progression by building on existing predictive, prescriptive, optimization, and machine learning capabilities to reduce the manual effort between insight and action. As the market matures, the strongest platforms will be those that provide enough operational context to distinguish which disruptions actually matter, connect those events to downstream business consequences, and help customers respond in near real time or, where possible, anticipate issues before they materially affect operations.

Market Overview

The supply chain control tower technology market is entering a more mature phase in 2026. Organizations have spent years digitizing individual areas of the supply chain through ERP, planning, transportation, warehouse, manufacturing, procurement, and visibility applications. These investments have improved performance within individual functions, but they have also created complex technology environments where decisions frequently span multiple departments, systems, trading partners, and physical operations. The challenge is increasingly less about collecting more information and more about determining what matters, understanding its downstream impact, and responding quickly enough to improve the operational and financial outcome.

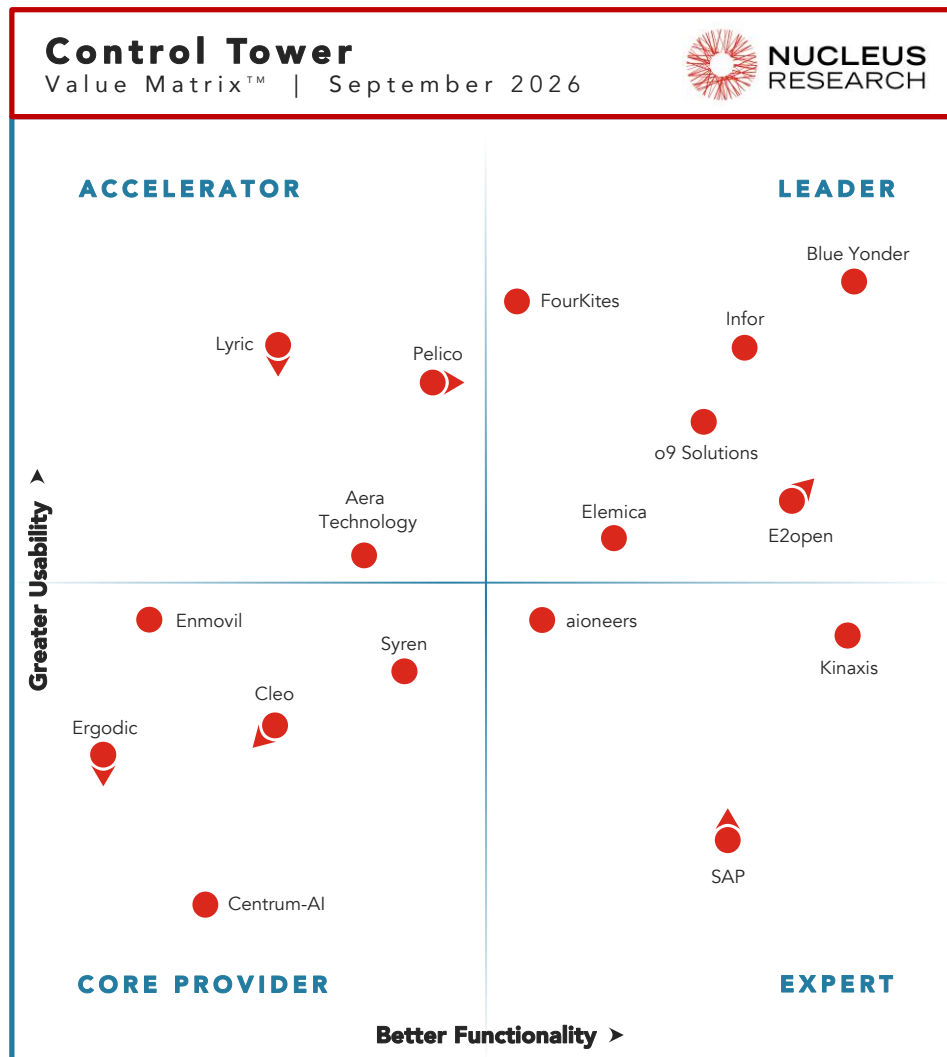
Nucleus views control tower technology as a decision and orchestration environment that provides a connected digital view or model of the physical supply chain and helps organizations move from signal to action. Visibility and analytics remain foundational. Control tower technology has historically used analytics, machine learning, optimization, and other techniques to identify disruptions, predict potential outcomes, prioritize exceptions, and recommend responses. More mature capabilities extend these insights into action by connecting events to the suppliers, materials, orders, inventory, capacity, facilities, transportation flows, customers, and financial outcomes they affect. The software can then help determine whether intervention is necessary, evaluate potential responses, prioritize an action, and coordinate that response through users, workflows, connected applications, trading partners, automation, or software agents.

This objective is not new. Control tower technology has long been positioned as a progression from visibility toward actionability. What has changed is the maturity of the technologies and operating environments supporting that objective. Supply chain data is becoming more connected, planning and execution processes are moving closer together, multi-enterprise networks provide greater access to external signals, and digital twins and other enterprise models can represent increasingly complex operational relationships. Advances in generative and agentic AI are building on the predictive, prescriptive, optimization, and machine learning capabilities already established in the market by reducing the manual effort required to interpret information and carry decisions into operational workflows. As these capabilities mature, the boundaries between control tower technology, supply chain

The market is converging as vendors from planning, execution, visibility, manufacturing, and multi-enterprise networks increasingly solve the same supply chain decision problems.

orchestration, decision intelligence, planning, and operational execution are becoming less distinct.

Where a vendor starts still matters, but the lines between planning, execution, visibility, and orchestration are becoming much less distinct.



Nucleus does not view these categories as mutually exclusive simply because vendors use different terminology or begin from different architectural foundations. Multi-enterprise network platforms start with connectivity across suppliers, carriers, customers, and other trading partners, then increasingly combine that network with planning, optimization, execution, and decision-support capabilities. Planning-led offerings begin with models of demand, supply, inventory, capacity, and production constraints, then extend those models toward operational response and execution. Execution-oriented platforms operate closer to transportation, warehousing, manufacturing, and other real-time processes. Manufacturing-focused offerings can provide deeper context around BOMs, materials, production orders, equipment, quality, and plant capacity. Decision intelligence platforms

may use digital twins, knowledge graphs, ontologies, causal models, or other enterprise models to understand operational dependencies and evaluate alternatives. Integration-led offerings use transaction flows between enterprise applications and trading partners as the foundation for exception management and orchestration.

These architectural differences remain important because they influence where organizations are likely to achieve value first. A manufacturer facing material shortages may require detailed production, BOM, and capacity context. A retailer may prioritize inventory positioning, supplier milestones, transportation conditions, product location, and proactive receiving. A logistics-intensive organization may require deeper shipment, carrier, and appointment information. Other companies may already have strong visibility across manufacturing, planning, transportation, or warehousing, and instead need technology that connects these environments into a broader supply chain decision layer. There is therefore no single architecture that represents the ideal control tower deployment for every organization.

The market is nevertheless converging. Network vendors are expanding beyond connectivity to include planning, optimization, execution, and decision support. Planning vendors are extending closer to logistics, manufacturing, and operational execution. Visibility providers are adding digital twins, workflow automation, optimization, and AI agents. Manufacturing platforms are connecting plant events with upstream and downstream supply chain decisions, while decision intelligence vendors are integrating recommendations more directly with transactional systems. Architecture increasingly determines where a vendor enters an organization, but not necessarily where it ultimately competes.

This convergence also requires greater clarity around what qualifies as control tower technology. Visibility alone is not sufficient. Nucleus expects control tower capabilities to connect relevant signals across multiple systems, functions, assets, or trading partners; contextualize and prioritize those signals based on operational or business impact; support analysis or recommendations for an appropriate response; and provide a pathway from that decision to coordinated action. That action may occur through a user, a workflow, an enterprise application, a trading partner, an automated process, or a software agent. Vendors do not need to own every underlying system or operate from a specific architecture, but identifying that an event occurred without supporting the decision and response represents visibility rather than mature control tower functionality.

The biggest differentiator is becoming context, or the ability to understand which disruptions actually matter and what they affect downstream.

Operational context is consequently becoming one of the most important differentiators in the market. Detecting that a shipment is late, inventory has fallen below target, or a supplier missed a milestone is relatively straightforward. Determining whether that event actually matters is substantially more valuable. A late shipment may require no intervention if sufficient inventory is available elsewhere. A supplier delay may become critical when a constrained material supports several high-priority production orders or customer commitments. A production issue may require a different response depending on available capacity, alternative suppliers, transportation options, inventory positions, customer priorities, and financial exposure. The value of control tower technology increasingly comes from understanding these dependencies well enough to separate ordinary deviations from events that could materially affect service, cost, revenue, inventory, or production.

This capability is particularly important as organizations invest in broader supply chain maturity. Planning, procurement, manufacturing, quality, logistics, warehousing, customer service, finance, and IT can all participate in responding to the same disruption, yet information is often distributed across separate applications and organizational structures. Historically, companies have compensated through spreadsheets, email, meetings, phone calls, and manually assembled reports. These approaches increase decision latency and make it more difficult to establish a common understanding of the issue, determine ownership, and coordinate a response.

Customer adoption is therefore increasingly tied to initiatives around standardization, digitization, cross-functional collaboration, and scalable growth. The immediate business case can vary significantly. Organizations may be responding to rising backorders and customer escalations by improving supplier coordination, reducing transportation exceptions, expanding factory visibility into the broader supply chain, enabling proactive receiving, or digitizing a previously manual operating environment. Operations leaders frequently sponsor these initiatives, although Nucleus has also observed IT organizations taking a larger role as control tower deployments become part of wider data and technology transformation strategies.

Nucleus expects adoption to remain highly use-case driven. Organizations should begin with a measurable operational problem rather than the objective of deploying control tower technology for its own sake. Initial deployments may focus on shortages, production bottlenecks, supplier milestones, transportation exceptions, inventory

Control tower maturity increasingly comes down to how quickly an organization can identify an issue, understand its impact, and take the right action.

positioning, predictive logistics, receiving, or other specific workflows. Once the underlying data and process are connected, customers can expand into adjacent decisions and business functions. This approach also creates a clearer path to ROI by establishing measurable baseline performance before the technology is extended more broadly across the enterprise.

A useful indicator of maturity is decision velocity, defined as the time required to move from a relevant supply chain signal to an informed and executable response within the appropriate operational window. Speed alone does not represent maturity. The objective is to make the right decision early enough to improve the outcome materially.

In less mature environments, disruptions may not become apparent until they have already affected a production schedule, a customer order, a service level, or a financial result. Users must then manually collect information from multiple systems and stakeholders before determining a response. Organizations at an intermediate level of maturity can identify an issue within the same operating day, understand the relevant dependencies, and coordinate corrective action before the disruption materially expands.

More mature environments increasingly compress this cycle toward real-time response, where the operating process requires it. As conditions change, the technology can identify the deviation, evaluate its impact, and support action while the event is still unfolding. The most advanced organizations move further upstream by combining current signals with historical patterns, operational models, and known constraints to identify conditions associated with future disruption. Recurring congestion on particular transportation lanes, seasonal inventory imbalances, supplier performance patterns, capacity constraints, or production variability can provide early indications of where issues are likely to emerge. This enables organizations to prevent or mitigate a greater share of disruptions rather than simply responding faster after they begin.

This progression provides a practical framework for evaluating both maturity and ROI. The business case for control tower technology should not be measured primarily by the number of dashboards, data feeds, alerts, models, or AI features deployed. Faster, better-informed decisions can reduce expedite costs, lower inventory exposure, reduce backorders, improve service levels, increase asset and labor productivity, improve production utilization, reduce customer escalations, and reduce time spent manually investigating exceptions.

More mature organizations are moving from reacting after a problem occurs to responding as it happens, or even anticipating it before operations are affected.

Organizations can also increase operational scale without expanding coordination overhead at the same rate. The strongest ROI, therefore, comes from reducing the frequency and economic impact of disruptions while lowering the time and resources required to manage them.

Exception management is becoming increasingly aligned with this objective. Earlier visibility environments frequently created another operational challenge by presenting users with too many alerts and deviations. Mature control tower capabilities increasingly evaluate downstream impact before determining whether intervention is required. Service exposure, inventory availability, production constraints, customer commitments, financial impact, and available alternatives can all influence how an exception is prioritized. The objective is not to notify users about every deviation occurring across the supply chain. It is to focus attention and resources on the events where intervention can materially improve the outcome.

Planning and execution convergence is supporting the same progression. Organizations are increasingly using execution signals to understand deviations from plan and determine whether replanning or another corrective action is required. Scenario analysis can then be applied closer to the operational decision. Users may compare actions such as reallocating inventory, changing production priorities, switching suppliers, expediting transportation, adjusting schedules, or modifying customer commitments against cost, service, capacity, inventory, and financial objectives. This enables decisions to account for broader enterprise trade-offs rather than optimizing a single functional metric in isolation.

Multi-tier supply chain visibility is undergoing a similar transition. Identifying exposure to a supplier, geographic region, or transportation lane provides useful awareness, but limited decision support on its own. Greater value is created when deeper-tier supplier relationships can be connected to materials, BOMs, production capacity, inventory positions, logistics flows, customer orders, and revenue exposure. This allows organizations to determine not only that a risk exists, but which operations are affected, when the impact is likely to occur, how significant that impact could become, and what alternatives remain available.

AI is accelerating many of these developments, but it represents an evolution of capabilities already established within control tower technology rather than an entirely new component of the category.

Customers are still buying around specific business problems, not broad technology visions, which makes use-case fit and measurable ROI especially important.

Predictive analytics, machine learning, optimization, and prescriptive recommendations have long helped users anticipate outcomes and identify potential responses. Generative AI is improving how users interact with information and analytical models, while agentic AI is beginning to automate portions of the work that occur between identifying an issue and executing a response.

Customer adoption remains more measured than the pace of vendor innovation. Nucleus has observed a strong appetite for AI, but maturity varies substantially. Some organizations are still implementing copilots and conversational interfaces within existing applications. Others are applying AI to scheduling, carrier operations, predictive logistics, maintenance, production-order prioritization, supplier communications, and the identification of potential supply chain choke points. More advanced use cases apply AI across thousands of suppliers, orders, assets, and milestones to identify patterns and exceptions that would be impractical for users to monitor themselves continuously.

The more significant development is therefore not simply better analytics, but the ability to connect analytics more directly with action. Software agents can monitor exceptions, gather supporting information, communicate with suppliers, analyze shortages, evaluate potential responses, adjust planning inputs, coordinate appointments, or initiate transactions in connected systems. Agentic AI does not change the underlying purpose of control tower technology. It provides another mechanism for shortening the detection-to-resolution cycle and reducing the manual work required to move from insight and recommendation into execution.

Customers are not approaching autonomy as an all-or-nothing proposition. Decisions differ in their financial impact, operational risk, complexity, and reversibility. Repetitive and high-confidence activities may be appropriate for automation, while other decisions should be recommended to a user or escalated for approval. Human-in-the-loop governance, explainability, confidence thresholds, business rules, auditability, and clear decision ownership are therefore becoming increasingly important components of enterprise AI adoption. The most mature environments will not necessarily automate the most decisions. They will apply the appropriate level of automation to each decision while maintaining the governance required to protect operational and financial outcomes.

This creates an important requirement for vendors. Technological innovation is currently outpacing many organizations' ability to

ROI is increasingly tied to reducing backorders, expedite costs, inventory exposure, customer escalations, and the manual effort required to manage exceptions.

operationalize it. Customers increasingly need more than demonstrations of new AI capabilities. They need vendors that can configure technology around actual business processes, integrate it into existing environments, establish appropriate governance, support user adoption, and ultimately demonstrate measurable ROI. New functionality also needs to be sufficiently developed before it is introduced into critical operational processes. The pace of innovation provides limited value when customers are unable to move the technology from demonstration into sustained production use.

Industry and regional expertise remain important for the same reason. Control tower deployments touch highly specific processes, constraints, terminology, decision structures, and operating models. As vendors expand into new industries and geographic markets, customers continue to value teams that understand both the technology and the environment in which it will operate. This includes the ability to communicate in the customer's literal language where applicable, but equally important is speaking the language of the industry, process, and business outcome. This becomes increasingly important as AI capabilities must be configured around the context and decision structures of individual organizations.

Nucleus ultimately views mature control tower technology as supporting a continuous operating loop spanning sensing, contextualization, prioritization, decision-making, orchestration, execution, and learning. The technology identifies a change in the operating environment, understands the dependencies it affects, determines whether intervention is required, evaluates feasible responses and their trade-offs, and coordinates the selected action. Over time, historical outcomes and operating patterns can provide additional context for future recommendations, predictions, and automation.

The defining development in 2026 is therefore not a new purpose for control tower technology, but a broader convergence of technologies capable of delivering on its original promise. Visibility, analytics, planning, execution, multi-enterprise connectivity, digital twins, decision intelligence, optimization, and AI are increasingly contributing to the same objective of reducing the distance between signal and action.

For customers, the relevant consideration is shifting less from which vendor offers the broadest definition of control tower technology and more toward whether the software can improve the speed and quality

AI has long played a role through machine learning, optimization, and predictive analytics, but generative and agentic AI are now helping automate more of the work between insight and action.

of decisions in a specific operating environment. The maturity progression moves from delayed awareness and manual response, to same-cycle identification and resolution, to near-real-time intervention where appropriate, and ultimately toward anticipating and preventing a greater share of disruptions before they materially affect operations.

Control tower technology is therefore not being replaced by supply chain orchestration or decision intelligence. These capabilities are increasingly becoming the mechanisms through which the market fulfills its longstanding objective of turning supply chain visibility and analytics into coordinated action. The measurable improvement in that process and the ROI generated by reducing the time, cost, resources, and operational impact associated with disruption are where Nucleus expects the next phase of market value to be created.

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 Control Tower 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, Elemica, FourKites, Infor, and o9 Solutions.

Blue Yonder

Blue Yonder is placed as a Leader in the 2026 Control Tower Technology Value Matrix for its Supply Chain Command Center, which leverages the Blue Yonder Network as its multi-enterprise foundation. The vendor serves a wide range of industries, including consumer goods, retail and hospitality, life sciences, automotive and industrial manufacturing, high-tech, logistics service providers, defense, and humanitarian aid. The Blue Yonder Network is a many-to-many ecosystem of more than 150,000 trading partners that supports collaboration and orchestration across suppliers, carriers, distributors, and customers. The Supply Chain Command Center sits within the broader Blue Yonder Platform, connecting network data with planning and execution applications so organizations can identify deviations from plan, assess operational impact, and coordinate responses across

Orchestration and decision intelligence are not replacing control tower technology, but are becoming core parts of how the category delivers faster and more coordinated decisions.

Blue Yonder's Command Center extends past shipment visibility into multi-tier demand, supply, inventory, and capacity orchestration, with machine learning built in.

internal teams and external partners. A common data model supports the flow of information across demand and supply planning, inventory, transportation, capacity, and partner execution processes.

The Supply Chain Command Center extends beyond shipment and order visibility into multi-tier demand, supply, inventory, and capacity orchestration. Users can trace pegged demand-supply relationships across supplier tiers, identify material and capacity shortages, and evaluate how upstream constraints affect downstream production and customer commitments. Time-phased projected inventory, pipeline and in-transit inventory, configurable capacity nodes, and forward-looking capacity projections provide additional context for identifying where shortages or bottlenecks are likely to emerge. Partner-aligned process templates enable organizations and external trading partners to operate against common workflows, transaction states, and business rules, including buy-sell processes spanning multiple tiers. Multi-enterprise ticketing further supports execution by tying issues directly to transactions and workflows, enabling partners to manage them through to resolution within the Network.

Decision support and automation are increasingly embedded across these workflows. Machine learning-based recommendations and scenario analysis help users evaluate disruptions and generate prescribed responses, while the Network Ops Agent, Predictive Execution Agent, Logistics Intelligence Agent, and Knowledge Agent extend monitoring, analysis, and task execution across network operations. Risk management capabilities combine external risk signals with supplier, facility, port, lane, and network relationships to identify operational exposure rather than presenting events in isolation. Blue Yonder has also expanded guided partner onboarding to include automated registration, validation, approval, and exception handling, while its AI Integration Co-Builder assists in mapping partner data specifications to reduce the effort required to establish network connections. Transportation connectivity across parcel, rail, ocean, and international logistics further extends the Command Center into execution, while the Developer Network enables customers to configure applications and processes around their own multi-enterprise requirements.

Updates over the last 12 months:

► **Expanded digital network foundation.**

Blue Yonder improved navigation and consistency across modules while adding LLM-based entity resolution, multilingual partner

Blue Yonder's Supply Chain Command Center runs on its 150,000-partner network. New agents like Riskbot and Order Copilot now carry exceptions through to resolution.

invitations, automated self-service onboarding, and standardized data mapping and validation. The updates are intended to simplify partner connectivity and improve interoperability across the network.

► **Broader planning and supplier collaboration capabilities.**

Blue Yonder extended Command Center integration across purchase orders, shipments, and invoices while adding multi-tier demand-supply visibility, dynamic inventory controls, forecast collaboration, order collaboration, and capacity planning. AI-driven prescriptions also help users address resource constraints and supply-demand imbalances.

► **Expanded transportation and logistics orchestration.**

Blue Yonder added multi-stop trip management, ocean booking lifecycle support, multi-leg transportation optimization, enhanced shipment tracking, modernized carrier APIs, and private fleet functionality. These updates strengthen end-to-end logistics coordination across modes and carrier networks.

► **Enhanced network risk and resilience management.**

Blue Yonder expanded external risk signal ingestion, geospatial impact visualization, automated event approval, expedite workflows, and regulatory event monitoring. The capabilities help teams identify disruptions earlier and coordinate mitigation against affected orders and supply chain flows.

► **Expanded AI agents and workflow automation.**

Blue Yonder introduced conversational agents, including Riskbot, Order Copilot, and Stockout Resolution, alongside AI Lab, Knowledge Copilot, LLM-based risk signal extraction, and prescription-driven workflows. The updates extend AI from insight discovery into guided resolution of operational exceptions.

► **Improved traceability, sustainability, and quality management.**

Blue Yonder expanded carbon and emissions tracking, order-line milestone and country-of-origin visibility, asset lifecycle management, work order controls, shipment inspections, and defect management. These capabilities provide customers with greater operational traceability while supporting compliance, quality, and sustainability requirements.

Over the past year, Blue Yonder added ocean booking lifecycle support, multi-leg transportation optimization, and automated event approval to its logistics workflows.

E2open

E2open is recognized as a Leader in the 2026 Control Tower Technology Value Matrix. The company serves organizations across manufacturing, logistics and transportation, and consumer goods industries, including high tech, aerospace and defense, automotive, oil and gas, pharmaceuticals, apparel and footwear, CPG, food and beverage, and retail. The e2open Control Tower operates as a cross-functional orchestration layer across the vendor's broader platform rather than as a standalone visibility application. It brings together Channel, Planning, Global Trade, Logistics, and Supply applications over the e2net N-tier partner network, with Harmony providing a unified user experience and process-orchestration layer. E2net connects more than 500,000 trading partners across manufacturing, logistics, and distribution, while a shared data model normalizes information from internal systems and external partners to support coordinated decision-making across the network.

The Control Tower framework follows a See, Understand, Act, and Learn model, moving from visibility and exception detection into impact assessment, response evaluation, execution, and continuous feedback. E2open supports cross-functional command-center capabilities spanning distribution, planning, logistics, procurement, manufacturing, and supply risk, enabling users to coordinate decisions across executional, tactical, and strategic horizons. N-tier visibility extends across customers, retailers, distributors, internal operations, co-packers, direct suppliers, and deeper-tier suppliers. Supply Network Discovery further extends this reach by identifying sub-tier relationships and supporting supplier qualification, due diligence, onboarding, scorecards, and BOM-level traceability across the extended network.

Risk and disruption management are closely tied to corrective action. E2open combines operational and physical disruption data with regulatory, ESG, financial, logistics, and trade risk information to determine which events are relevant to the supply network and how their effects may propagate across multiple tiers. When disruptions occur, the platform can assess customer, inventory, supply, and service impact and evaluate responses, including expediting, material movements, alternate suppliers, substitute commodities, channel changes, or replanning. Native Global Trade capabilities also extend the Control Tower into regulatory and compliance workflows, enabling organizations to identify affected products, coordinate supplier responses, assess risk, and restrict or redirect noncompliant goods. E2open is also expanding AI-enabled exception management and

E2open's Control Tower spans planning, trade, logistics, and supply over the 500,000-partner e2net. Its Agentic Digital Assistant now coordinates actions, not just answers.

agent-driven decision support, although its broader network connectivity and cross-functional orchestration remain the more established foundation of the Control Tower today.

Updates over the last 12 months:

► **Agentic Digital Assistant expansion.**

E2open continued to develop its Agentic Digital Assistant as a natural-language interface across connected planning and control tower workflows. The assistant is evolving from answering planning questions toward coordinating actions and workflows across applications.

► **Expanded exception management and prioritization.**

E2open added capabilities for sub-tier supply risk detection, configurable criticality scoring, forecast exception analysis, constraint replanning, role-based PO collaboration, and inventory availability prioritization. These updates help users identify the most important disruptions earlier and focus attention on the exceptions with the greatest operational impact.

► **AI-driven workflow automation.**

E2open expanded automation across data stewardship, partner onboarding, PO change approvals, product classification, customs declarations, export classification, and restricted-party screening. The enhancements reduce manual processing while maintaining configurable approval and human-review controls.

► **Enhanced predictive sensing and scenario planning.**

E2open improved supply sensing, demand sensing, forecasting, and connected what-if analysis with additional machine learning models, event signals, feature engineering, and simulation capabilities. These updates improve predictions of supply and demand changes while allowing planners to evaluate scenarios before incorporating them into baseline plans.

► **Unified planning and control tower data foundation.**

E2open expanded its connected planning data model, cross-application dashboards, Harmony user experience, and real-time data infrastructure. New and enhanced connectivity with Snowflake, SAP S/4HANA, Confluent Kafka, Dun & Bradstreet, and Walmart Cloud Feeds supports broader interoperability and more timely data exchange across the network.

► **Closer convergence of planning and execution.**

E2open expanded automation across data stewardship, partner onboarding, customs declarations, and export classification, alongside better supply and demand sensing.

E2open continued to incorporate logistics feasibility, landed cost, customs requirements, tariff exposure, and partner screening into planning workflows. This allows customers to account for execution and regulatory constraints earlier in the supply plan development process.

► **Expanded trade compliance and partner network capabilities.**

E2open added support for EUDR compliance, additional global trade regulations, and enhancements to its partner onboarding architecture. These updates broaden regulatory coverage while reducing the effort required to connect additional suppliers, customers, and logistics partners to the network.

Elemica's multi-enterprise network executes demand, supply, and fulfillment flows for 44,000 enterprises. A new MCP server lets AI assistants query its data directly.

Elemica

Elemica is placed as a Leader in the 2026 Control Tower Technology Value Matrix for its multi-enterprise digital supply chain network and network-enabled SaaS applications that support its Control Tower capabilities. The vendor serves organizations across manufacturing industries including petrochemicals, specialty chemicals, and agriculture, as well as food and beverage, life sciences, high-tech, consumer goods, tire and rubber, and automotive industries. Elemica's core differentiation is its established multi-enterprise network, which executes demand, supply and fulfillment flows for more than 44,000 enterprises across manufacturers and their customers, suppliers, logistics service providers, and other business partners. The platform connects to enterprise systems including SAP, Oracle, IFS and Microsoft environments through APIs, EDI, portals, marketplaces, and other B2B connections, giving customers a common foundation for orchestrating processes across external partners rather than relying on separate point-to-point workflows.

The platform supports orchestration across supplier order management, inventory collaboration, quality and compliance, customer order management, logistics and transportation management, and multi-carrier shipping execution. These capabilities span procure-to-pay, order-to-cash, and transportation processes, with reporting, analytics, and real-time fulfillment visibility providing additional context for identifying disruptions and bottlenecks. Elemica's underlying data model links transactions and process relationships across the network, enabling users to work across multiple enterprise systems and partner environments from a common execution orchestration layer. The platform also extends multi-tier visibility beyond direct supplier relationships, while bi-directional integration

with ERP systems supports the exchange of operational updates between Elemica and systems of record.

Elemica continues to broaden the Control Tower through supplier relationship management, quality management, and risk-oriented workflows alongside its established logistics and transaction network. Users can incorporate external intelligence related to geopolitical, supplier, transportation, financial, and compliance risk into broader operational processes, while network data can also support carrier and supplier performance analysis. The vendor is progressing toward more AI-assisted orchestration, using AI today primarily to support unstructured data capture, anomaly identification, analysis, workflow design, and automated correction while maintaining a more controlled approach to runtime autonomy. This positions Elemica's Control Tower around multi-enterprise process coordination and network execution, with particular depth in process manufacturing environments.

Elemica's orchestration layer now validates, corrects, and harmonizes execution data before it reaches ERP or WMS systems, catching errors before they spread downstream.

Updates over the last 12 months:

► **Expanded Master Data Orchestration.**

Elemica continued to enhance its orchestration layer for validating, correcting, enriching, and harmonizing execution data before it reaches systems of record. The capability reduces downstream rework while supporting real-time data flows across Elemica and third-party sources.

► **Expanded self-service partner and document onboarding.**

Elemica broadened its document extraction and onboarding capabilities across purchase orders, supplier invoices, Certificates of Analysis, and additional transaction types. Agentic AI and GenAI are used to generate templates and extract data from non-standard documents, reducing onboarding effort for new partners and formats.

► **Improved data quality and change validation.**

Elemica added field-level extraction accuracy reporting, source attribution, AI-based forecast reconciliation, and Replay Testing for proposed rule changes. These capabilities help customers identify data-quality issues, understand how records were modified, and test changes before moving them into production.

► **Expanded real-time transaction visibility.**

Elemica introduced centralized monitoring across parcel, LTL, FTL, and freight-forwarding transactions to provide a real-time view of carrier and system activity. The update helps users identify

transaction failures and operational issues earlier rather than relying on reactive troubleshooting.

► **Elemica Platform MCP Server.**

Elemica introduced an MCP gateway that allows compatible AI assistants and Elemica agents to query network data, partner and transaction status, and document extraction results through natural language. This extends access to network intelligence beyond traditional application workflows.

► **Expanded operational analytics and natural-language insights.**

Elemica productized its Insights capabilities with automated daily dashboards, redesigned supplier scorecards, more frequent network usage reporting, and Insights Auto Answers for governed natural-language analytics. The updates provide more timely access to operational and network performance information.

► **Expanded logistics and supplier execution capabilities.**

Elemica introduced a mobile shipping application and an Inbound Execution Center for supplier PO confirmation, packing, rate shopping, and labeling, alongside updates to rate management. These capabilities reduce manual execution steps and improve coordination across inbound and outbound logistics processes.

► **Enhanced sustainability and compliance support.**

Elemica expanded automated emissions calculation and ESG reporting within logistics workflows while also enhancing RNIF 1.1/CIDX connectivity support for chemical-industry trading partners. The updates support regulatory reporting and more secure transaction exchange across the network.

Elemica launched an MCP gateway that lets AI assistants query live network, partner, and transaction data directly, plus a mobile app for supplier-side execution.

FourKites

FourKites is placed as a Leader in the 2026 Control Tower Technology Value Matrix for its Intelligent Control Tower platform. The company serves organizations across the food and beverage, retail, consumer packaged goods, chemicals and oil and gas, manufacturing, pharmaceuticals, and logistics services sectors. The platform is built around FourSight AI, Loft, Digital Twins, and the FourKites Network Graph. FourSight AI provides conversational analytics, dashboards, scorecards, and role-specific views; Loft serves as the orchestration and execution layer; Digital Twins represent orders, shipments, inventory, yards, appointments, and assets; and the Network Graph connects operational data across FourKites' carrier, supplier, facility, lane, and shipment ecosystem. These capabilities are supported by FourKites'

real-time transportation visibility network, external data such as weather and traffic, and integrations with ERP, WMS, TMS, and other operational systems.

The Intelligent Control Tower uses this foundation to identify and contextualize disruptions across inbound supply, transportation, inventory, and fulfillment processes. Users can monitor exceptions, including missing ASNs, in-transit delays, missed appointments, stockout risk, missing proof-of-delivery documentation, and arrival prioritization, while evaluating their downstream effects on production, inventory, and customer service. Order, Shipment, and Inventory Twins connect demand, in-transit supply, and inventory position to provide a more complete view of planning and execution conditions. FourKites also applies network intelligence across suppliers, carriers, lanes, facilities, and shipments to support benchmarking, performance analysis, supplier discovery, and risk assessment. FourSight AI can further evaluate disruption scenarios by identifying affected components and inventory, quantifying operational exposure, and comparing mitigation options against factors such as rerouting cost and avoided stockouts.

FourKites extends these capabilities into coordinated execution through Loft and its Digital Workforce. Sophie enables users to create automations using natural-language instructions, while specialized agents include Sam for supplier collaboration and document processing; Tracy for shipment monitoring and exception escalation; Alan for appointment scheduling; Polly for document collection and compliance; and Cassie for customer service and claims workflows. Agents can coordinate actions across systems and communication channels, reducing manual effort in resolving operational exceptions. Booking Connect for Ocean further extends FourKites into transactional freight execution by supporting carrier selection, booking, documentation, and exception handling. Together, these capabilities move the Intelligent Control Tower beyond merely identifying disruptions to recommending and executing operational responses.

Updates over the last 12 months:

► **Inventory Twin.**

FourKites made Inventory Twin generally available during the review period, extending its Digital Twin framework to connect inventory position with order, shipment, and fulfillment activity. The capability strengthens the planning-to-execution loop by helping

FourKites' Intelligent Control Tower pairs Digital Twins and a Network Graph with named AI agents. Booking Connect for Ocean now extends it into freight booking itself.

users understand how inventory availability and in-transit supply affect downstream service and replenishment decisions.

► **Loft AI agent orchestration platform.**

FourKites made Loft generally available as the orchestration layer for its Digital Workforce, enabling customers to coordinate multiple AI agents across shared supply chain workflows rather than deploy them as isolated tools. Sophie further enables users to convert natural-language process descriptions into deployable automations.

► **Booking Connect for Ocean.**

FourKites introduced agentic ocean freight booking capabilities that can ingest contracts, evaluate rates, select carriers, book voyages, manage documentation, and handle exceptions. The capability extends the Intelligent Control Tower from visibility and exception management into transactional freight execution.

► **Digital Workforce production expansion.**

FourKites expanded production deployment of its specialized agents across shipment monitoring, supplier collaboration, appointment scheduling, document compliance, and customer service workflows.

FourKites made its Loft orchestration layer generally available, letting customers coordinate multiple AI agents across booking, monitoring, and supplier collaboration.

Infor

Infor is placed as a Leader in the 2026 Control Tower Technology Value Matrix for its Infor Nexus Control Center. The vendor serves organizations across consumer goods, fashion, retail, industrial manufacturing, automotive, electronics, distribution, and logistics service provider environments. Infor Nexus operates as a multi-enterprise supply chain network, connecting organizations with suppliers and trading partners across multiple tiers to provide visibility into orders, inventory, production, and transportation activity. Through the Control Center, users can identify disruptions, assess their impact across interconnected supply chain processes, collaborate with external partners, and coordinate responses such as adjusting purchase, distribution, and transportation activity. Predictive analytics and decision-support capabilities further help users identify exceptions and bottlenecks, and evaluate actions to balance supply, demand, service, and cost objectives.

Infor continues to extend the depth of its network visibility and operational intelligence. First-mile transportation visibility enables organizations to monitor goods from the point of origin through

consolidation facilities and ports, while Harbor Dwell Analytics and the Network Dwell Map provide insights into congestion, dwell times, and port performance using both customer shipment information and broader Nexus network data. Geofencing capabilities support monitoring around maritime chokepoints and other defined regions, while non-event detection identifies expected activities that do not occur, allowing users to intervene before downstream impacts worsen. NexTrace extends the platform into multi-tier traceability by mapping supplier relationships and product movement across the network, supporting documentary evidence and regulatory requirements such as UFLPA compliance and emerging product transparency mandates. Infor has also expanded its supplier-network intelligence by using traceability data to construct a more detailed view of extended supplier relationships.

The platform's data and decision layer is increasingly incorporating AI-assisted interaction and automation. The Infor Nexus AI Assistant enables users to query supply chain data, generate summaries and analytics, navigate directly to underlying transactions, and support tasks such as preparing communications and investigating cross-functional issues. Infor is also developing task-specific agents with customers that monitor network data, identify exceptions, surface role-based insights, and initiate workflows across areas such as inbound logistics, planning, and accounts payable. Data Guardian supports data-quality monitoring across the network, while intelligent data mapping uses task-specific language and vision models to convert unstructured or externally generated information into structured Nexus data. This includes translating supplier production exports into production records and extracting certification information from documents, reducing the manual effort required to bring external partner data into control tower workflows.

Updates over the last 12 months:

► **Expanded network intelligence for maritime disruptions.**

Infor Nexus enhanced its monitored-zone capabilities across major maritime chokepoints with historical throughput analysis, delay detection, and improved ETA calculations. The added intelligence helps customers identify emerging transit delays and assess the impacts of rerouting earlier.

► **Dwell management work boards.**

Infor introduced work boards that combine port and shipment data to identify containers at risk of extended dwell and demurrage

Infor's Nexus Control Center now flags expected activity that never happens, like a missed pickup, so teams can intervene before it causes delays.

charges. The functionality gives teams a more actionable view of congestion and supports earlier intervention before additional costs accrue.

► **Pre-shipment process mining.**

Nexus added process mining across supplier-side events such as labeling, booking, packing, and shipping to establish typical fulfillment patterns and identify deviations. Customers can use the resulting data to improve lead-time assumptions, monitor supplier performance, and detect missing or delayed activities.

► **Expanded agent ecosystem and orchestration.**

Infor broadened Nexus's agent capabilities with purpose-built agents for order collaboration, freight pay and audit, purchase orders, and shipments, alongside a new orchestrator that directs requests to the appropriate agent. The updates extend AI from information retrieval toward workflow automation and exception-based execution across network processes.

► **Greater extensibility and control for Nexus agents.**

Infor added an MCP interface for external agents, user-defined routine scheduling, agent workspaces that expose outputs for review, and a no-code agent builder for custom use cases. These capabilities allow customers to bring Nexus intelligence into other enterprise workflows while maintaining greater control over how agents are configured and used.

Infor added an MCP interface and no-code agent builder, giving customers direct control over how Nexus's AI agents are configured and extended.

o9 Solutions

o9 Solutions is placed as a Leader in the 2026 Control Tower Technology Value Matrix for its Digital Brain platform and Control Tower capabilities. 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. The o9 Control Tower is embedded within the broader Digital Brain platform and the Supply Chain Planning & Analytics foundation, enabling organizations to monitor orders, inventory, supply, demand, and external events, while connecting disruption management directly to operational planning. The Enterprise Knowledge Graph provides the contextual layer beneath the platform, linking operational relationships across the enterprise so users can understand the causes and downstream impacts of disruptions rather than evaluating exceptions in isolation.

The Control Tower is structured around a continuous Sense, Translate, Solve, Execute, and Learn decision loop. The platform detects changes and exceptions, determines their operational significance, evaluates potential responses, and coordinates resulting actions through planning and execution workflows. Scenario analysis can assess alternative responses against metrics such as demand fulfillment, cost, margin, inventory, and service objectives, with resolution options including alternative sourcing, inter-plant transfers, production adjustments, or expedited transportation. Because these decisions use the same supply, demand, inventory, capacity, lead-time, sourcing, production, and logistics constraints that underpin o9's planning environment, disruption response remains connected to the broader supply chain plan.

o9's Control Tower runs inside its Digital Brain platform. The Resolution Cockpit automates lower-risk responses and escalates the harder calls to the right people.

o9 further extends the Control Tower through decision orchestration and governance across operational, master planning, and S&OP/IBP horizons. The Resolution Cockpit supports issue aggregation, guided resolution, escalation, approval workflows, and decision logging, allowing organizations to automate lower-risk responses while routing higher-impact decisions to the appropriate users. Causal and impact analysis, risk quantification, and decision histories provide additional explainability around why issues occurred, how recommended actions were generated, and their expected effect on downstream business outcomes. Integration with o9's Integrated Business Planning, demand planning, and digital twin capabilities also enables organizations to evaluate operational responses within broader commercial, financial, and multi-tier supply chain objectives.

Updates over the last 12 months:

- ▶ **Expanded connected planning and Control Tower workflows.**
o9 Solutions enhanced supply planning, supplier collaboration, order promising, MRP, MEIO, demand planning, and IBP capabilities. The updates improve exception management, scenario analysis, supplier coordination, inventory decisions, and alignment between operational and financial plans.
- ▶ **APEX decision framework.**
o9 Solutions introduced APEX as a framework for continuous decision improvement, combining visibility, root-cause analysis, prediction, and recommended actions. Built on the Digital Brain and Enterprise Knowledge Graph, it is intended to help customers move from identifying issues toward more consistent decision execution.

► **Neurosymbolic Enterprise Knowledge Graph.**

o9 Solutions expanded its Enterprise Knowledge Graph with a neurosymbolic approach that combines AI pattern recognition with business rules, constraints, relationships, and institutional knowledge. This provides additional enterprise context for evaluating the operational and financial impact of disruptions, demand shifts, tariffs, and capacity constraints.

► **Post-Game Analyzer.**

o9 Solutions introduced the Post-Game Analyzer to compare expected and actual planning outcomes, identify root causes, and surface areas of value leakage. The capability creates a feedback loop between execution results and future planning decisions.

► **Expanded business simulation capabilities.**

o9 Solutions continued to develop simulation tools to evaluate potential decisions before implementation. Customers can model scenarios involving supplier disruptions, tariffs, capacity, inventory, network changes, sustainability, and market shifts using enterprise data maintained within the platform.

► **Expanded industry templates and customer enablement.**

o9 Solutions increased investment in industry-specific planning templates, proof-of-value programs, and customer Centers of Excellence. These efforts are intended to accelerate deployment, support internal adoption, and help customers scale their planning capabilities to meet industry-specific requirements.

o9's Post-Game Analyzer compares expected and actual planning outcomes to identify root causes and surface where value was left on the table.

Experts

Experts in the Control Tower Technology Value Matrix are Aioneers, Kinaxis, and SAP.

Aioneers

aioneers is placed as an Expert in the 2026 Control Tower Technology Value Matrix for its AIO Platform. The vendor supports mid-sized to large organizations across automotive, manufacturing and equipment, consumer products, and pharmaceuticals and life sciences. The AIO Platform brings together Supply Chain Control Tower, Supply Chain Planning, and AI & Automation capabilities across a common data foundation. It is designed as a composable overlay that can connect with existing ERP, planning, TMS, WMS, and other supply chain applications rather than requiring organizations to replace underlying systems. The Control Tower integrates data across suppliers, plants,

distribution centers, customers, materials, inventory, and transportation to provide end-to-end visibility and exception management from customer demand through tier-x suppliers. The underlying architecture includes supply chain data models, ontologies, knowledge graphs, active metadata management, and a Supply Chain World Model, with the platform deployed on Microsoft Azure and Databricks, and supporting visualization through tools such as Qlik and Power BI.

At the center of the platform is a closed-loop problem-solving model structured around Analyze, Decide, Act, and Learn. The Control Tower identifies exceptions and their root causes, evaluates their operational and financial impact, and supports recommended responses rather than stopping at alert generation. Users can assess disruptions across affected plants, products, customers, inventory, supplier capacity, spend, and revenue exposure, helping them prioritize issues based on downstream business impact. The platform also supports risk-signal aggregation, material-shortage analysis, safety-stock management, single-source risk identification, and supplier-capacity visibility. Causal AI works with the platform's World Model and KPI relationships to explain why performance conditions occurred and assess how current disruptions may affect future outcomes.

aioneers is also bringing Control Tower, planning, and execution-oriented decision support closer together through scenario-based planning, demand forecasting, allocation management, supplier-capacity management, production scheduling, and optimization. Machine learning can be applied to predictive demand-and-supply use cases, while prescriptive workflows support responses such as inventory allocation, replenishment, and mitigation of projected stockouts. The AI & Automation layer adds generative AI, causal analysis, and automated recommendations across these processes, enabling the platform to move from detecting supply chain conditions toward evaluating, coordinating, and supporting operational responses within the same decision environment.

Updates over the last 12 months:

► **ML forecasting benchmark capability.**

aioneers expanded its AIO ML Forecasting Engine with benchmarking that compares machine learning forecasts against OEM call-offs across multiple planning horizons. The capability helps customers determine where ML forecasts provide greater accuracy and where short-term OEM signals remain more reliable.

aioneers' AIO Platform overlays existing systems to identify exceptions, root causes, and business impact. Its new Causal AI traces KPI problems back to what caused them.

► **AI-enabled root-cause analytics.**

aioneers introduced a Causal AI approach that uses KPI driver trees to identify the underlying causes of performance gaps. The capability can trace current service, inventory, or other KPI issues back to earlier operational events or planning decisions.

► **AI-enabled impact analytics.**

aioneers extended its driver-tree framework to assess the likely downstream impact of current disruptions on future KPIs. The capability produces probability-based outcome ranges, giving users a faster way to evaluate scenarios without running a full planning cycle.

► **Supply Chain Resilience Framework and benchmark.**

aioneers introduced a structured resilience framework spanning foresight, resistance, response, and return, supported by 21 improvement levers and a maturity benchmark. The framework helps customers assess their resilience capabilities relative to peers and prioritize areas for improvement.

► **Modular AIO Platform re-architecture.**

aioneers restructured the AIO Platform into composable layers spanning data models and knowledge graphs, control towers and planning, machine learning and optimization, and GenAI. The architecture is designed to accelerate the deployment of persona-specific applications, such as copilots for transportation, distribution, and air freight management.

aioneers introduced a Supply Chain Resilience Framework, benchmarking foresight, resistance, response, and return across 21 improvement levers.

Kinaxis

Kinaxis is placed as an Expert in the 2026 Control Tower Technology Value Matrix for its Maestro platform. The vendor serves organizations across automotive, aerospace and defense, consumer goods, high-tech, industrial, life sciences, and retail, with capabilities spanning supply and demand planning, S&OP/IBP, inventory management, production planning and scheduling, transportation management, order management, and command-and-control workflows. Maestro is increasingly positioned as an orchestration platform spanning planning through execution, continuously synchronizing demand, supply, inventory, production, logistics, fulfillment, and associated decisions. A unified supply chain data fabric provides the operational context for this orchestration, while preconfigured connectors support integration with internal and external systems.

Maestro follows a Sense, Predict, Prescribe, and Execute model, with learning and automation helping close the loop between disruption detection and response. Kinaxis's concurrent decision intelligence enables users to model a change and immediately assess its impact across supply, demand, inventory, orders, production, logistics, and transportation without waiting for separate functional planning runs. These orchestration capabilities are built on Kinaxis' concurrent planning architecture, enabling planning and execution decisions to be synchronized across interconnected supply chain functions. Users can configure decision triggers around internal and external signals, evaluate alternative scenarios, and coordinate changes across operational and financial plans. The integration of transportation management, order management, and returns management into Maestro further tightens the connection between planning and execution, while Enterprise Scheduling extends this orchestration into globally coordinated production schedules across plants and operating constraints.

Kinaxis Maestro's concurrent decision intelligence assesses a modeled change instantly across supply, demand, inventory, and logistics, all at once.

Kinaxis is also bringing predictive, generative, and agentic AI into the same orchestration architecture. Predictive models support forecasting and pattern detection, generative AI supports analysis and complex user queries, and Maestro Agents are being developed to perform tasks within operational workflows. The Worksheet Agent, for example, can identify conditions such as inventory falling below safety stock and support resulting planning adjustments. The broader multi-agent framework allows organizations to define agent behaviors, control data access, and coordinate workflows with governance and explainability, with agent-to-agent collaboration representing the next stage of the architecture. Together, these capabilities extend Maestro from concurrent planning toward continuous decision orchestration across planning and execution.

Updates over the last 12 months:

► **Operational Orchestration Framework.**

Kinaxis introduced an Operational Orchestration framework that extends concurrent planning into continuous synchronization of signals, decisions, actions, and feedback across enterprise operations. The approach is intended to tighten coordination between planning and execution as conditions change.

► **Semantic Intelligence Foundation.**

Kinaxis added semantic intelligence capabilities that use ontologies and semantic reasoning to harmonize relationships, constraints,

dependencies, and trade-offs across systems and data models. This provides a consistent operational context for AI, agents, and decision support.

► **Expanded Maestro agents and multi-agent orchestration.**

Kinaxis broadened Maestro with the Worksheet Agent, Agent Studio, Orchestrator Agent, Agent Skills, and coordinated multi-agent capabilities. These updates support natural-language interaction, customer-specific agent development, and more automated orchestration of complex supply chain workflows.

► **Maestro Advanced Solver Studio.**

Kinaxis introduced Advanced Solver Studio to let customers and partners extend decision logic with their own optimization, heuristic, machine learning, and analytical models. The capability increases platform extensibility for specialized planning and decision use cases.

► **Expanded open and composable architecture.**

Kinaxis enhanced Maestro's ability to incorporate customer-developed AI, machine learning, optimization, and other decision-making technologies through interoperable, composable platform components. This gives customers greater flexibility to extend the platform without relying solely on native models.

► **Forward Deployed Engineering model.**

Kinaxis introduced a Forward Deployed Engineering engagement model for co-developing customer-specific AI and operational orchestration solutions. The model is intended to accelerate the deployment of new use cases by combining Maestro capabilities with customer-specific requirements and emerging technologies.

Kinaxis added an Advanced Solver Studio, letting customers extend Maestro's decision logic with their own optimization and machine learning models.

SAP

SAP is placed as an Expert in the 2026 Control Tower Technology Value Matrix. The vendor supports large global organizations across energy, consumer goods, aerospace and defense, automotive, technology, manufacturing, healthcare, financial services, and government. SAP's Control Tower capabilities are increasingly being integrated into a broader supply chain orchestration model that spans planning, supplier collaboration, logistics, warehousing, and execution. SAP Integrated Business Planning provides the planning foundation, with a harmonized planning environment that integrates time-series and order-based planning and enables users to move across strategic, tactical, and operational horizons. The broader environment integrates with SAP

Business Network, SAP Ariba, SAP Transportation Management, and SAP Extended Warehouse Management to connect internal planning decisions with supplier and logistics execution.

SAP combines visibility, exception management, and scenario analysis to help users detect disruptions, assess their operational impact, and coordinate a response across planning and execution. Intelligent alerts and case-management workflows support issue prioritization and escalation, while planners can evaluate disruptions against inventory, capacity, demand, service, and other operational constraints before adjusting plans. SAP is increasingly extending this process through Joule Agents, which can identify emerging risks, prioritize exceptions, evaluate alternative scenarios and trade-offs, and support resulting planning actions. Production-focused agents can also validate material availability, capacity, and scheduling constraints before recommending alternatives or releasing production activity, thereby moving SAP closer to a closed-loop model that integrates disruption detection, decision-making, and execution.

These capabilities form part of SAP's broader move toward autonomous supply chain management, in which specialized agents and Joule Assistants operate across planning, manufacturing, logistics, engineering, and asset management, sharing business data and process context. Rather than positioning AI primarily as another analytical interface, SAP is developing agents to participate directly in operational workflows while retaining user review and governance for higher-impact decisions.

SAP builds control tower capability into Integrated Business Planning. Its Joule Agents identify risks and validate capacity before production plans are released.

Accelerators

Accelerators in the Control Tower Technology Value Matrix are Aera Technology, Lyric, and Pelico.

Aera Technology

Aera Technology is recognized as an Accelerator in the 2026 Control Tower Technology Value Matrix for its supply chain decision-intelligence capabilities delivered through Aera Decision Cloud and Aera Supply Chain Skills. The platform supports Control Tower use cases through capabilities such as Order Lifecycle Management, which provides end-to-end visibility across the order journey and applies a continuous Understand, Recommend, Act, and Learn decision model. Aera extends this approach across a broad set of supply chain processes, including demand forecasting and sensing, inventory management, stock rebalancing, stockout prevention, available-to-

promise, supply response, claims management, slot scheduling, container utilization, logistics event management, and master data management. The same decision-intelligence foundation also supports use cases across procurement, finance, sales and marketing, HR, and ESG, enabling supply chain decisions to be evaluated within a broader enterprise context.

Aera Decision Cloud provides the underlying architecture for these capabilities through its Decision Data Model, Multi-Engine Orchestration, Agentic Ambient Intelligence, and Dynamic Engagement components. The platform combines operational data, AI models, optimization engines, business rules, and workflows to continuously evaluate decisions and determine appropriate responses. Multi-Engine Orchestration allows different analytical and decision techniques to be applied within the same process, while Dynamic Engagement provides users with prescriptive recommendations and visibility into ongoing decision activity. This enables Aera to move beyond exception monitoring by assessing potential responses, presenting their expected impacts and trade-offs, and routing the resulting decisions either for human review or for automated execution.

Agentic capabilities further extend this model by allowing Aera to gather context, evaluate alternatives, recommend actions, and execute selected decisions within operational workflows. Aera's agents are built around structured prompts, governed decision data, reusable functions, and persistent decision histories, helping constrain agent behavior within defined business processes. In supply chain use cases, this can include identifying projected stockouts or excess inventory, evaluating mitigation alternatives, and executing responses such as reallocating inventory, modifying supply, or adjusting planned orders. This positions Aera's Control Tower capabilities primarily around continuous decision intelligence and autonomous or semi-autonomous execution rather than traditional dashboard-centric visibility.

Lyric

Lyric is recognized as an Accelerator in the 2026 Control Tower Technology Value Matrix for its Supply Chain Command Center capabilities delivered through Lyric Studio. Rather than operating as a standalone application, the Command Center sits within Lyric's Connected Decisions portfolio and uses the broader Studio platform to connect planning, modeling, scenario analysis, and decision intelligence across supply chain functions. Lyric Studio separates the underlying data, algorithms, decision workflows, and user experience into configurable layers, enabling organizations to build decision

Aera Decision Cloud doesn't stop at monitoring. It evaluates candidate responses and routes each one for either human review or automated execution.

processes around their own operating models rather than relying solely on predefined applications. The platform supports decisions across network design, demand, supply, inventory, transportation, capacity, and labor, with additional cross-functional capabilities spanning S&OP/IBP, risk and resilience, service, cost, and sustainability.

At the foundation, Lyric Studio provides a common data and semantic layer that supports both batch and real-time information, governance, lineage, and reusable supply chain entities. Algorithms are packaged separately from the applications that consume them, allowing optimization, forecasting, simulation, and other decision models to be reused and combined across workflows. Lyric's sequence layer connects these components into algorithmic workflows, enabling users to chain data transformations, models, scenarios, and resulting actions without hard-coding each process into an application. This architecture allows the Supply Chain Command Center to evaluate disruptions and constraints across interconnected decisions, rather than treating individual exceptions in isolation. For example, changes in demand, sourcing, capacity, inventory, or transportation can be modeled against downstream service, cost, and operational implications before a response is selected.

AI is embedded across the Studio architecture through decision and builder agents. Decision agents support exception monitoring, analysis, scenario evaluation, recommendations, and explanations of what changed and why, while builder agents allow users to create data pipelines, decision workflows, and experiences through natural-language interaction. Users can also configure their own agents around specific operating requirements. Because these agents operate on the same underlying decision models and sequences, Lyric is positioning them as part of the decision process rather than as a conversational layer on top of separate applications. For Control Tower use cases, this enables organizations to move from identifying an operational change to evaluating alternatives and coordinating cross-functional responses across planning and execution-oriented decisions.

Lyric Studio embeds decision and builder agents throughout its architecture, so exception monitoring and scenario evaluation run on the same shared data layer.

Pelico

Pelico is positioned as an Accelerator in the 2026 Control Tower Technology Value Matrix for its Supply Chain Orchestration Platform, designed for complex discrete manufacturing environments, including aerospace and defense, industrial equipment, energy equipment manufacturing, and luxury manufacturing. Pelico serves both original equipment production and maintenance, repair and overhaul operations on the same platform, managing service orders, turnaround

time, and parts availability alongside production execution rather than in a separate system. The platform operates as an S&OE layer between corporate planning and factory execution, connecting ERP data from systems such as SAP, Oracle, and Infor with supply, inventory, production, maintenance, and customer commitments. Pelico is built on a manufacturing-native domain ontology that models BOM structures, supplier relationships, work orders, and repair or service orders, inventory, quality constraints, programs, and operational priorities. A deterministic projection engine uses a common allocation graph and forward-time propagation to evaluate material coverage, delay impact, prioritization, and execution decisions from a single underlying model.

The platform is designed to move from disruption detection into coordinated operational response. Users can identify shortages, supplier delays, quality issues, and production or repair constraints and trace their effects across plants, external contractors, programs, customer commitments, and revenue exposure. Cross-plant pegging allows Pelico to evaluate material commitments across the enterprise rather than on a site-by-site basis, helping users identify where inventory or supply can be reallocated to protect higher-priority production and customer requirements. Scenario analysis and recommendations support decisions across sourcing, material allocation, production sequencing, maintenance, inventory, and program execution, while escalation workflows route issues to the appropriate teams. These capabilities run at enterprise scale in production: one customer operates 30-plus sites on Pelico as a single pegged network, and another onboarded six plants in six weeks against a rollout target of more than 60 plants in 2026.

A key part of Pelico's positioning is its support for continuous intra-day operational replanning between planning cycles. Rather than waiting for weekly or monthly planning cycles, users can reassess supply, production, inventory, and program priorities as disruptions occur throughout the day and propagate those changes into execution. Pelico has moved this decision support into governed agentic execution through a Detect, Recommend, and Act model, which has been running in production at aerospace and defense and industrial equipment manufacturers since early 2026. Agents operate on the same manufacturing ontology and allocation graph used by the broader platform, with confidence thresholds, human approval, auditability, and deterministic logic governing actions. ERP write-back enables approved decisions to update system-of-record fields directly, supporting use cases such as supplier commitment management, schedule

Pelico connects planning to the factory floor for complex manufacturers. One customer already runs 30-plus sites on Pelico as a single connected network.

adjustments, material reallocation, and operational record updates while closing the loop between disruption detection and execution.

Updates over the last 12 months:

► **Unified planning and impact engine.**

Pelico consolidated pegging, coverage, and impact calculations into a single computational engine. This gives users consistent answers across planning, event analysis, line-of-balance, and object-level workflows and provides a stronger foundation for automated actions.

► **Closed-loop ERP execution.**

Pelico added write-back capabilities that allow approved decisions in the platform to update ERP fields directly, including purchase order delivery dates, requisition notes, and work order finish dates. This moves the platform beyond recommendation toward execution while reducing manual handoffs.

► **Expanded simulation capabilities.**

Pelico introduced multi-level, asynchronous simulation with persistent scenarios, explicit scope, pegging-based suggestions, firm-event splitting, and rebuilt aftermarket workflows. These enhancements allow users to run larger scenarios, revisit prior results, and compare alternatives without interrupting other work.

► **Inventory Optimization and Control Tower 2.0.**

Pelico expanded inventory management with saved optimization models, consolidated KPI visibility, and recommended actions such as pushing out or canceling supply and identifying stock for scrap or sale. The update shifts inventory analysis from reporting toward prioritized decision support.

► **Agentic orchestration and AI Buyer.**

Pelico deployed AI agents for supplier follow-up, escalation triage, and purchase order actionability, with simulated impact, human approval, permission controls, and audit logging built into the workflow. The same foundation supports the vendor's AI Buyer procurement suite.

► **Expanded agent development platform.**

Pelico introduced an internal agent platform and reusable tool library that allows agent capabilities developed for individual use cases to be productized and extended across customers. This also

Pelico's AI Buyer agents now handle supplier follow-up and escalation triage directly, with simulated impact and human approval before any action executes.

provides a foundation for customers to compose agents against Pelico data from their own environments.

► **Natural-language supplier data ingestion.**

Pelico expanded its ability to process supplier emails, portal updates, and PDF attachments, extract committed dates and quantities, and convert them into structured operational data. The approach combines LLM-based interpretation with deterministic supply chain calculations to maintain reproducibility and auditability.

► **Broader disruption and operational coverage.**

Pelico extended control tower coverage beyond material shortages to include quality issues, program blockers, and work-in-progress management at the serial-number level of granularity. It also continued to unify original equipment manufacturing and aftermarket service workflows on the same platform.

► **Expanded deployment flexibility and enterprise governance.**

Pelico added native connectivity that supports deployment during ECC-to-S/4HANA migrations without requiring a clean-core prerequisite, with new sites typically reaching production use in under 12 weeks, while also strengthening AI governance through customer-controlled language model environments, role-based permissions, and action-level auditability.

► **Expansion into energy equipment manufacturing.**

Over the last 12 months, Pelico extended its industry coverage beyond aerospace and defense, industrial equipment, and luxury manufacturing to energy equipment manufacturing. New customers in the segment run on the same manufacturing ontology and material coverage workflows rather than on a data model built specifically for the engagement.

Pelico can now read supplier emails, portal updates, and PDF attachments directly, extracting committed dates and quantities without manual entry.

Core Providers

Core Providers in the Control Tower Technology Value Matrix are Centrum-AI, Cleo, Enmovil, Ergodic, and Syren.

Centrum-AI

Centrum-AI is recognized as a Core Provider in the 2026 Control Tower Technology Value Matrix for its Decision Intelligence platform. The platform is designed to operate across an organization's existing technology environment, connecting ERP systems, databases, and

other operational sources through a broad library of connectors and harmonizing this information into a unified supply chain model. Centrum-AI uses this foundation to provide visibility across suppliers, countries, spend, inventory, demand, sourcing, production, and transportation while preserving underlying systems of record. The platform's World Supply Chain Model provides the context for evaluating dependencies and constraints across the network, while natural-language configuration and modeling capabilities are intended to reduce the effort required to define new decision workflows and scenarios.

Centrum-AI's World Supply Chain Model lets users branch off scenarios from live data, testing tariffs or supplier shifts without touching real operations.

Centrum-AI structures its decision process around a Connect, Model, Optimize, and Act framework. Users can create isolated scenario branches from production data to evaluate changes such as tariff increases, supplier shifts, demand changes, or sourcing alternatives without affecting live operations. The optimization engine evaluates scenarios against multiple constraints including supplier capacity, lead times, quality, demand forecasts, inventory levels, transportation costs, tariffs, and risk. Resulting recommendations can include supplier allocation, inventory positioning, order timing, production changes, and risk-adjusted cost outcomes, enabling users to compare alternatives before committing to a response.

Risk and resilience capabilities extend this model into multi-tier supplier analysis and continuous replanning. Centrum-AI can monitor tariff and regulatory changes, identify Tier 2 and Tier 3 supplier exposure, assess concentration risk, and apply anomaly detection to emerging supply conditions. Its optimization capabilities support probabilistic planning and dynamic rebalancing as operating conditions change, while approved decisions can be exported back into ERP systems to close the loop between analysis and execution. This positions Centrum-AI primarily as a decision-intelligence and optimization layer for organizations seeking to coordinate sourcing, supply, inventory, production, and risk decisions across fragmented enterprise systems.

Cleo

Cleo is recognized as a Core Provider in the 2026 Control Tower Technology Value Matrix for its Supply Chain Orchestration capabilities delivered through the Cleo Integration Cloud. The platform is designed to sit across an organization's existing application and partner ecosystem, connecting ERP, TMS, WMS, e-commerce, CRM, databases, and real-time transportation visibility platforms with external trading partners, including carriers, 3PLs, distributors, manufacturers, retailers, and suppliers. Cleo's foundation in EDI and B2B integration

enables organizations to automate the exchange of transactional data and extend those connections into cross-enterprise workflows, positioning the platform a role as an orchestration layer within existing supply chain architecture rather than requiring customers to replace underlying systems of record.

On top of this integration foundation, Cleo provides supply chain orchestration capabilities across order, invoice, supplier, freight, and exception-management processes. Live order views give users visibility into transaction status across connected partners and systems, while supplier order management, freight order execution, scorecards, anomaly detection, and intelligent exception handling help identify and resolve process disruptions. Cleo also supports chargeback prevention and invoice discrepancy management by identifying issues earlier in the transaction lifecycle and coordinating corrective actions before they affect downstream fulfillment or payment processes. This model is particularly suited to organizations that need greater visibility and process control across fragmented partner networks but want to preserve their existing ERP, logistics, and commerce applications.

Cleo is extending these workflows through Cleo AI, which acts as an intelligence layer across the Integration Cloud and includes 18 purpose-built agents. These agents support use cases including partner onboarding, error resolution, revenue recovery, invoice automation, supply chain visibility, and prescriptive analytics. Rather than operating independently of the integration layer, the agents work against transactional and partner data already flowing through Cleo, enabling the platform to detect issues, recommend actions, and automate selected responses within existing business processes. This moves Cleo beyond traditional EDI and integration toward a broader supply chain orchestration model, although its Control Tower differentiation remains centered on connectivity, workflow automation, and exception resolution rather than the deeper planning and optimization capabilities of more planning-centric vendors.

Cleo layers 18 purpose-built AI agents onto its Integration Cloud, working directly against the transactional and partner data already flowing through it.

Enmovil

Enmovil is recognized as a Core Provider in the 2026 Control Tower Technology Value Matrix for its Control Tower capabilities within a broader supply chain decisioning platform. The vendor supports organizations across automotive, construction, pharmaceuticals, electrical, oil and gas, telecommunications, industrial, and retail and CPG environments. Enmovil structures the platform across Predict, Plan, and Execute layers, with capabilities spanning demand forecasting, scenario modeling, inventory optimization, production and capacity

planning, warehouse planning, dispatch planning, fleet sizing, transportation execution, and freight settlement. The Control Tower sits within the Execute layer but draws on decisions and data generated across the broader platform, enabling organizations to connect operational visibility with upstream planning and downstream logistics execution. Enmovil is designed to sit above existing ERP, TMS, WMS, carrier, and IoT environments rather than replace them, providing an additional decision and orchestration layer across the existing technology stack.

The Control Tower provides multi-modal shipment visibility, ETA prediction, risk identification, exception management, and operational monitoring across carriers and transportation networks. Its broader decisioning architecture allows these execution signals to be evaluated alongside demand, inventory, capacity, warehouse, and dispatch information, providing users with additional context on the downstream impact of disruptions. Enmovil combines predictive analytics, scenario modeling, root-cause analysis, alerts, and recommended mitigation actions within a closed decision loop that moves from sensing and analysis into planning and response. This allows organizations to progress from identifying a logistics exception toward evaluating alternatives such as rerouting, rescheduling, inventory adjustments, or other operational changes.

CADDIE provides the conversational and agentic layer across this environment, connecting data and decisions from ERP, TMS, WMS, carriers, and other operational systems through natural-language interaction. Users can query operational conditions, investigate exceptions, evaluate scenarios, and surface recommended actions through chat or voice interfaces, while selected workflows can be carried into the applications teams already use. Enmovil therefore positions Control Tower functionality as one component of a broader cross-functional orchestration model spanning prediction, planning, and execution rather than as an isolated transportation-visibility application.

Enmovil's CADDIE lets users query ERP, TMS, WMS, and carrier data by chat or voice, then trigger the recommended action across those same systems.

Ergodic

Ergodic is recognized as a Core Provider in the 2026 Control Tower Technology Value Matrix for its Enterprise World Model and decision-intelligence capabilities. Rather than operating as a traditional dashboard-centric Control Tower, Ergodic builds a persistent model of an organization's operations that represents entities, dependencies, operating conditions, and historical behavior as causal relationships. The Enterprise World Model combines a context graph of suppliers,

facilities, products, routes, customers, and other operational entities with the drivers that influence performance and historical information describing how the network has behaved over time. The platform can incorporate information from ERP, warehouse, supply chain, and other operational data sources, providing a common environment for understanding how events and decisions propagate across the business.

Ergodic structures decision-making around a Build, Reason, Rank, Trace, and Act model. Once the operating environment is represented, users and decision agents can evaluate interventions rather than relying only on historical pattern recognition. The platform can simulate candidate actions forward across thousands of possible futures, propagate their effects through interconnected nodes, and rank alternatives according to expected outcomes. For example, responses to a supply shortage can be evaluated across service levels, inventory availability, cost, customer commitments, and other constraints before a rerouting, split-shipment, sourcing, or inventory decision is selected. Each recommendation retains a causal decision trace, allowing users to follow how an action affects downstream entities and understand the assumptions, calculations, and operational drivers behind its ranking.

The Enterprise World Model also provides a common reasoning environment for multiple decision agents, enabling agents focused on areas such as routing, procurement, inventory, staffing, or pricing to operate against the same representation of the enterprise rather than separate task-specific contexts. This supports use cases including OTIF improvement, demand forecasting, inventory and sourcing decisions, and reverse logistics, with the platform designed to move from identifying operational conditions toward evaluating trade-offs and supporting resulting actions. By grounding agents in a shared causal model and maintaining an auditable trace from recommendation back to underlying drivers, Ergodic approaches Control Tower orchestration primarily through decision intelligence and simulation rather than through a conventional visibility or planning application stack.

Ergodic's Enterprise World Model can simulate a proposed action across thousands of possible futures, then rank the alternatives by expected outcome.

Syren

Syren is recognized as a Core Provider in the 2026 Control Tower Technology Value Matrix for its Optima Control Tower. The platform is designed as an ERP-agnostic orchestration and decision-intelligence layer that brings together data from existing supply chain applications across procurement, sourcing, transportation, warehousing, inventory, order management, sales, and returns. Syren supports Control Tower use cases across retail and CPG, life sciences, and manufacturing, with

industry-specific workflows spanning planning, supplier performance, inventory and cost management, risk detection, compliance, asset utilization, and logistics. Built around a Databricks-based data foundation, Optima combines operational data with external signals to provide a cross-functional view of supply chain performance while preserving customers' existing systems of record.

Optima is structured around a closed decision loop that moves from sensing and prediction through analysis, planning, and response. The platform monitors operational conditions, applies anomaly detection and root-cause analysis to identify bottlenecks, and evaluates their effects across interconnected supply chain processes. Advanced analytics, demand sensing, supply chain mapping, scenario modeling, KPI monitoring, and alert generation provide additional context for prioritizing disruptions, while workflow automation converts findings into recommended or executable responses. Syren's implementation framework includes predictive, diagnostic, and prescriptive models, along with prioritization logic and scenario-based rules, enabling the Control Tower to progress from identifying an exception to determining and coordinating an operational response.

Generative and agentic AI capabilities extend this model by allowing users to interact with operational data through natural language, investigate root causes, receive contextual recommendations, and automate selected workflows. Syren has also applied multi-agent architectures to Control Tower deployments, with analytical agents working across both structured and unstructured information, while the orchestration layer connects the resulting decisions to operational systems. The platform retains a human-centric approach to decision-making, allowing organizations to determine where recommendations require review and where repetitive responses can be automated. This positions Optima primarily as a flexible intelligence and orchestration layer for organizations seeking to improve visibility and response across fragmented supply chain environments, rather than as a replacement for their underlying planning and execution applications.

Syren's Optima Control Tower is an ERP-agnostic layer that lets organizations decide which recommendations need review and which can run automatically.