

RESEARCH NOTE

TECHNOLOGY VALUE MATRIX 2015 SUPPLY CHAIN CONTROL TOWERS



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THE BOTTOM LINE

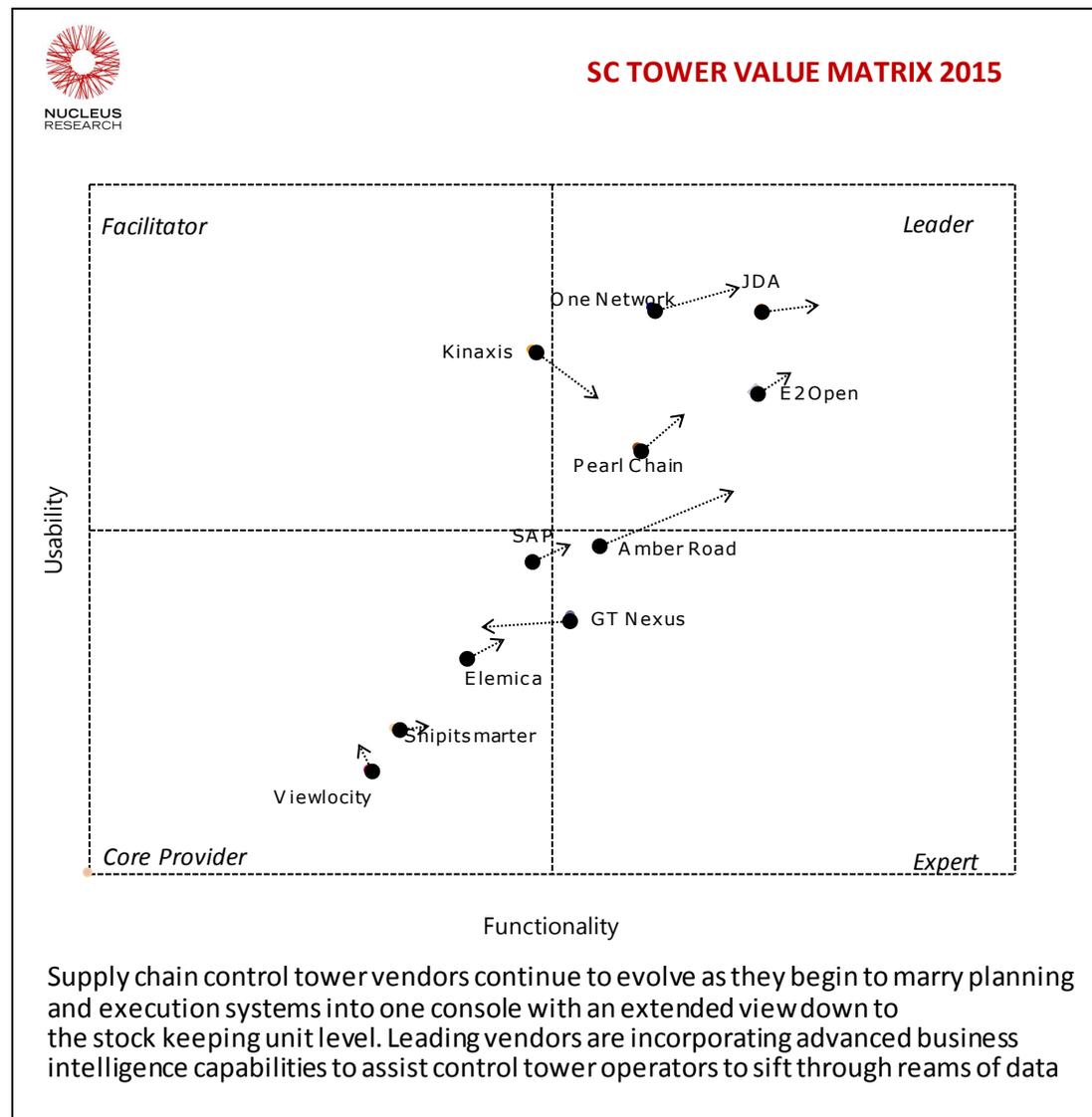
Today, leading control tower software vendors are starting to marry planning and execution applications into one console to provide end-to-end supply chain visibility for course correction. In this first-of-a-kind report Nucleus Research examines the current state of the control tower capabilities provided by commercial software vendors and compares them on the basis of functionality and usability.

In its most basic form a control tower is an information hub that affords visibility on inventory and shipments. It links data from other applications into one console to provide a picture of what's taking place in the supply chain. Other names for this type of platform are command center, watch tower and control center.

Control towers emerged in the 1990s as logistics providers needed a visibility mechanism to oversee shipments undertaken by carriers and third-party logistics (3PLs) companies. Logistic control towers are the forerunners of supply chain towers, which are broader in scope and encompass a view of inventory at motion or at rest, whether on a truck, in a factory, or at a supplier's distribution center. Shortly after control towers emerged as a mechanism for managing outbound transportation flows, other solutions sprang up to oversee inbound flows to facilitate production. As brand-name product makers started outsourcing production to contract manufacturers, software vendors came to support the extended enterprise by developing visibility applications to ensure suppliers could meet schedules for order commitments.

As noted earlier, most solutions currently on the market, due to their origins, are tilted toward transportation movements or production planning. Ultimately, control towers will be driven by demand signals, and necessitate a cockpit view of supply chain execution and planning in real time down to the item level. To assist supply chain managers with prompt real-time decision making, the control towers will have to be supported with advanced business intelligence to sift through all the data reaching the center from multiple applications and a multitude of supply chain partners.

Leading vendors are well on their way to building robust solutions for control towers, solutions that can oversee supply chain flows in real time and respond to changing market conditions in real time with either new production orders, rerouted shipments or recalculations of inventory holdings as far down the supply chain as third-tier suppliers. In the coming decade, control towers will become the most important supply chain application of all, a necessary component for any enterprise operating a demand-driven supply chain capable of responding to a volatile global market. Below is an assessment of what vendors offer today in this area.



LEADERS

Leaders in this first edition of the Matrix include E2Open, JDA, OneNetwork and, PearlChain.

E2OPEN

Based in Foster City, Calif., E2Open has a cloud-based solution for a control tower. Its visibility covers shipments, cases and stock keeping units (SKUs), the latter of which is accomplished through hierarchical drill downs from summary to detail throughout the product line. To provide that visibility, E2Open has focused on building any-to-any connectivity so it can collect near-real-time information from a wide mix of supply chain partners.

This past year E2Open acquired Serus Technologies to provide manufacturing visibility, contract compliance and design for manufacturing. It also completed the integration of network planning and response capabilities from its purchase of icon-scm in 2013.

The vendor also recently enhanced its business intelligence capabilities by adding dashboards and self-service configuration. The vendor offers both predictive and prescriptive analytics in addition to descriptive. It should be noted that E2Open takes advantage of real-time data for network planning and what-if analysis.

To enhance its end-to-end visibility, E2Open has focused on providing multiple means for supply chain partners to connect and share information. Although visibility is a key building block, advanced control towers must combine planning with execution supported by analytics. This vendor is far ahead of others in building a solution that marries execution and planning applications with a single version of the truth.

JDA

Early this spring Scottsdale-Ariz.-based JDA released Agile Control Tower, a cloud-enabled solution providing aggregated as well as detailed SKU level visibility for an end-to-end supply chain geared towards manufacturing planning. Agile Control Tower is actually just one of the JDA solutions with control tower capabilities for visibility, alerts and business intelligence.

Although Agile Control Tower denotes the term in its product title, JDA has placed control tower capabilities into other solutions geared towards supporting distinct supply chain roles. For example, the Intelligent Fulfillment solution provides end-to-end capabilities for efficient and profitable fulfillment targeted toward retailing, distribution and 3PL; it affords real-time visibility and dynamic course-correction over orders, transportation movements and inventory and supply chain events throughout the warehouse and partner network(s). The Collaborative Supply Execution application provides visibility to support coordination between a company and its suppliers to maintain supply chain flow. A mobile app, Supply

Chain Executive, released last year, gives a performance management dashboard view across supply chain planning, transportation and warehouse execution, which allows a top supply chain manager to recognize problems and take action. All of the above are cloud enabled.

JDA's most recent product, Agile Control Tower, uses in-memory technology, thus enabling the application to quickly process information to maintain up-to-the-minute visibility and to build models for scenario analysis. It offers a cockpit view to help planners address supply chain issues and provides descriptive, diagnostic, prescriptive and predictive analytics. In regard to the latter, Agile Control Tower gives a playbook of pre-configured responses for a planner to select from to fix problems such as a stock out or last-minute orders.

JDA is clearly one of the supply chain control tower leaders, having done development work to provide at-a-glance dashboard visualization as well analytics to support smart decision-making for course corrections. Its long-term vision is building control towers with the innate business intelligence to act as "self-learning solutions." Since JDA has control tower components spread among different solutions, it would be a welcome development for the vendor to create one solution that encompasses all supply chain roles regardless of industry and marries planning and execution into one console.

ONE NETWORK ENTERPRISES

The cloud-based control tower from One Network Enterprises in Dallas provides visibility down to the SKU level from a supplier's factory to the store shelf. The cloud solution works in conjunction with its Real Time Value Network, a platform for trading partners in a supply chain to share demand signal information.

This past year One Network released version 13.0 of its tower product. That release upgraded the usability of the control tower by providing a new executive dashboard and user interface. It also now offer social app functionality to enable unstructured enterprise to enterprise communication across its network in a secure environment. In addition, it now offers problem solving workbenches along with its analytical dashboards.

The control tower provides descriptive, predictive and prescriptive analytics. For example, if the tower senses from demand signals that a user may encounter a stock out on an item, it will then propose remedies.

A key differentiator for One Network is its network tenant model; once a company joins the community, it's immediately connected to other enterprises on the network. That saves implementation time in setting up a control tower for a new user in situations where a carrier or 3PL already provides data to the network. The other key aspect for One Network is its use of demand signals such that a control tower can respond in near-real time when it senses a market development in the making. One Network is a leader in the

space because it's developing a control tower that uses actual demand to drive replenishment, production and inventory placement.

PEARLCHAIN

Headquartered in Hasselt, Belgium, PearlChain offers a control tower that delivers visibility throughout the whole enterprise as the basis for managing the end-to-end supply chain. The agnostic solution, which is built on OpenSource code, sees shipments, cases and SKUs. The control tower can be set up via the cloud or with an on-premise software installation.

PearlChain's control tower provides a cockpit view of flows within a supply network. This past year the vendor upgraded its tower functionality to allow users to make customer workflows and to create their own alerting lists. In addition, last year the Belgian software vendor extended basic functionality to mobile devices such as iPads, iPhones and other tablets.

PearlChain provides business intelligence to assist users in planning and steering the supply chain, utilizing Jaspersoft Business Intelligence as its standard reporting tool. The solution takes advantage of in-memory technology to support real-time data analysis and employs semantic models to make data readily available for ad hoc reporting.

PearlChain claims to bring real time planning and execution together under the roof of its control tower. Not surprisingly given its Belgian roots, PearlChain has mostly European companies for customers at the moment, but has recently begun marketing its solution in the United States under the banner of PearlChain Americas. This vendor is one to watch as it expands its solution into the U.S. market.

EXPERTS

Experts in this edition of the Matrix are Amber Road and GT Nexus.

AMBER ROAD

Amber Road extended the capabilities of its control tower solution into the factory when it acquired ecVision this past March. Based in East Rutherford, N.J., Amber Road historically provided a solution that focused on supporting cross-border trade with views of international shipments in motion. Besides a control tower the vendor has modules for importing, exporting and customs documentation. Although 90 percent of its clients use the cloud offering, the company does make its application available for on-premise installation.

The control tower's view extends to the SKU level. The purchase of ecVision allowed Amber Road to see the on-hand parts and products located in a supplier's factory. In the

past year the software vendor boosted functionality to support trade documentation and customs filing in such Asian countries as China, Korea and Singapore.

In terms of usability Amber Road gives users the capability of creating custom graphical dashboards for individual reports. It recently added “work queues,” highlighted screens on the computer so users can quickly identify problems for correction. At the moment, the vendor only offers descriptive analytics. The database can be analyzed for cross-border moves, shipping data, duties on goods, and carrier performance.

Amber Road provides a well-established solution for monitoring and adjusting cross-border supply chain flows. Although Amber Road extended its functionality with the purchase of ecVision, the control tower still focuses primarily on transportation execution rather than planning and production scheduling.

GT Nexus

Oakland, Calif.-based GT Nexus provides a cloud platform that serves as a control tower. The solution, used by both carriers and shippers, gives visibility for shipments and SKUs by location in the supply chain. It provides a single system of record for network participants.

Some of the improvements made by GT Nexus this year to its solution include a new interface to transportation management systems. It has added the capability to capture data and signals from Internet of Things (IoT) devices to provide visibility and context into orders.

GT Nexus also has descriptive analytics so users can monitor key performance indicators. It added community benchmarks that allow users on its platform to compare their performance against peers. Although GT Nexus offers a strong solution for transportation monitoring, it lacks a demand planning and production scheduling components.

FACILITATORS

The lone facilitator in this edition is Kinaxis.

KINAXIS

Headquartered in Ottawa, Canada, Kinaxis offers a control tower solution called RapidResponse. Although most customers avail themselves of RapidResponse via the cloud, it does offer an on-premise version. Unlike other control tower vendors whose origins lie in transportation, Kinaxis built its solution as a mechanism for central planning for an extended enterprise. The solution helps manufacturers respond to changes in demand and then take actions using that information to make changes to production and inventory. The system can tie the highest-level demand signal to the lowest-level raw material component.

This past year Kinaxis extended the functionality of its solution by increasing its ability to handle larger data models, thereby improving scalability and system performance. It's also improved product usability by adding task forms to its existing set of workbooks, dashboards and scorecards. Mobile development currently underway will permit users to access the solution and collaborate on devices such as smartphones and tablets.

RapidResponse provides the complete gamut of analytics – descriptive, predictive and prescriptive. Its data and analytics model can depict historical, present and future states of the supply chain, and the control tower provides what-if analysis and simulation. Because analytics are embedded into the solution, it can display the impact of simulated changes in seconds without having to rely on custom business intelligence applications or reports. As a result, a supply chain planner can gauge the impact of prospective demand and supply chain actions prior to making a decision. In many regards Kinaxis is well-ahead of most competitors in the area of business intelligence, thus earning its spot as a facilitator.

Kinaxis makes the claim that because its platform operates on a single code basis, it enables its control tower to foster tighter supply chain coordination across company departments as well as with suppliers and customers. Even though RapidResponse is well-ahead of other vendors in terms of planning capabilities, it lacks a component for transportation execution.

CORE PROVIDERS

Core providers are Elemica, SAP, ShipitSmarter, and Viewlocity.

ELEMICA

Last year Elemica Inc. based in Exton, Pa. announced the release of cloud-based control tower that's part of the company's SmartLink suite of supply chain applications. Business Process Control Tower affords a view of transactional data from a range of supply chain partners. Elemica focuses its software on global process industries, especially the chemical industry. Some other applications in the SmartLink suite include sales order management, vendor managed inventory, and terminal managed inventory.

Elemica's control tower consolidates transactional data such as order, invoice, payment, and delivery information from suppliers, carriers and customers. It collects information from a variety of formats and forms and then puts the data into a single, unified enterprise view of the supply chain. Visibility encompasses SKUs, shipments, orders, invoices and payments. Because the solution can define and track key performance indicators by scorecards, it supports the practice of managing by exception.

Although the tower only provides descriptive analytics at present, Elemica is working on the development of business intelligence capabilities for the next version. The company is

also working on harmonizing data structures with a number of supply chain partners, including banks and carriers, to more effectively show supply chain flows.

SHIPITSMARTER

ShipitSmarter.com with its head office in Hilversum, Netherlands and a U.S. office in Cincinnati offers a cloud-based software-as-a-service (SaaS) control tower. A mix of industries, including dental, medical devices, banking, high tech, retail and food, employ its solution at present. Visibility afforded by the tower encompasses inbound, outbound and return movements, down to the SKU level if needed.

Some of ShipitSmarter's functionality improvements this past year include the ability to capture carrier point of delivery information in a separate vault for seven years. Another functionality upgrade was multi-leg visibility such that the first, second and third leg of shipment handled by different carriers are traceable by one unique number. Usability improvements include changes in the menu structure, an increase in the number of electronic carrier interfaces, faster label printing and enhancements to the shipment order routine.

ShipitSmarter provides a dashboard and descriptive analytics. The solution furnishes performance reports on carrier movements, loadings, trailer equipment, plus spend management analysis, invoice audits and cost accrual reports. Despite those features the solution is basically a logistics control tower.

SAP

SAP Supply Chain Control Tower affords pipeline visibility, collaboration and decision support for supply chain operations. SAP, based in Walldorf, Germany, unveiled its cloud-based control tower in 2014, a solution that can be integrated with other SAP applications including Integrated Business Planning, Event Management and Transportation Management. Because the control tower is built on the same platform as SAP Integrated Business Planning (IBP), it can leverage IBP capabilities for such activities as planning and simulation. It can also take advantage of IBP usability capabilities such as its Excel plug-in interface for scenario planning. SAP Hana serves as the underlay application architecture and data base, thus providing fast and scalable in memory data management to allow for "real time" supply chain management.

The control tower can combine information from multiple data sources, enterprise resource planning (ERP) systems and planning services to provide enterprise wide visibility across the supply chain for both planning and transactions. The tower's view covers SKU, location, production batches as well as packages. Although the solution comes with pre-defined metrics and key performance indicators (KPIs), a user can configure his or her own performance indicators and dashboard. The tower features an event resolution mechanism, "Case and Task Management," in which supply chain users can collaborate on

a problem. Another novel feature is its Jam social software platform, which enables document sharing along with internal and external collaboration

The tower also offers near-real-time analytics for users to assess the impact of events, gauge the root cause, and then consider possible resolutions. Besides KPIs on a predefined dashboard, the tower also provides predictive analytics.

With its advanced planning, simulation and analytics with the speed of in-memory computing, SAP Control Tower lays the basis for a platform that will manage supply chain flows in real time in the future. Although SAP has the vision and could eventually become the leader, it's still perfecting the solution.

VIEWLOCITY

Headquartered in Dallas, Viewlocity Technologies Ltd. provides a control tower platform on a SaaS basis. Viewlocity developed visibility platform and an event management solution more than two decades ago. It was acquired by Friedman Corp., a subsidiary of Constellation Software in 2011.

The Viewlocity tower leverages information from other applications such as enterprise resource planning, warehouse management systems, and transportation management systems to provide a holistic view of supply chain operations. The tower monitors inbound and outbound transportation, order management, return management, asset management and service management. The control tower comes with an executive dashboard that includes metrics, KPIs, and score cards. It provides alerts with impact analysis.

Earlier this year, Viewlocity announced a strategic partnership with FDC solutions to develop an integrated supply chain management solution called "ViewlytICS." That solution will combine the Viewlocity control tower with FDC Inventory Capital Solutions (ICS) suite of software, which offers inventory simulation and a planning system.

The partnership with FDC solution is a move by Viewlocity to offer a visibility platform that offers both planning and execution. Although an early leader in this area, Viewlocity has remained a logistics control tower for the most part. Its partnership with FDC is an attempt to keep pace with leaders.