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Market Guide for Supply Chain Analytics Technology

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Supply chain strategists are searching for analytics solutions that meet current needs and support future requirements. This research assesses the supply chain analytics market to support the strategists in selecting the best fit technology.

Key Findings

- Supply chain strategists are realizing that reliance on analytics technology is the only scalable approach to analyzing and gaining insights from the deluge of big data.
- A lack of market definition, aggressive vendor claims and immaturity of some tools are making it very challenging for supply chain strategists to know what tools to invest in and how to time that investment.
- Supply chain strategists are investigating their current business intelligence (BI), supply chain management (SCM) and modeling tools to assess these solutions' ability to support future supply chain analytics needs.

Recommendations

Supply chain strategists:

- Create a road map that outlines the goals and milestones of adopting supply chain analytics. In addition to technology tools, the road map should span process changes, organizational structure and talent needs.
- Identify the potential use cases and the span of functional capabilities required to address them: descriptive, diagnostic, predictive or prescriptive. This will guide you in comparing different offerings in a very fragmented and nascent market.
- Realize that many of the current analytics solutions are emerging technologies. Scalability, data governance and overall solution maturity will not be advanced as they are in more established technology tools.

Market Definition

Consider the following findings. By 2020, Gartner estimates that there will be 20 billion connected devices, communicating together to create the Internet of Things. In 2014, big data adoption in the supply chain increased by 28%, compared to 2013. Similarly, investment in big data increased by 50%, year over year. Currently, 72% of companies state that they need more analytics capabilities in their SCM tools (see "Survey Analysis: Supply Chain Investments Attempt to Reconcile Cost Savings and Process Improvement With Improved Customer Experience"). Also, CEOs state that business analytics is their top investment priority to enable growth (see "The 2014 Gartner CEO and Senior Executive Survey: What the Executive Focus on Growth and Digital Business Means for Supply Chain Organizations").

The confluence of these factors is driving supply chain strategists to build a foundation for a strong analytics competency (see "The Supply Chain Strategist's Guide to Analytics Maturity"). Organizationally, this could mean creating an analytics center of excellence with the requisite analytical talent. It can also lead to re-examining supply chain processes and redesigning some to leverage analytics in decision making and execution.

A strong analytics competency clearly requires strong technology capabilities. Now, supply chain strategists are in pursuit of the technology that best meets their needs. Strategists struggle to gauge the breadth of the supply chain analytics technology market and the different categories of vendors in this highly fragmented market.

Gartner defines a supply chain analytics technology as a technology solution that leverages data from disparate sources and supports the needs for descriptive, diagnostic, predictive or prescriptive analytics (see "Extend Your Portfolio of Analytics Capabilities"). Descriptive analytics answers the question of what has happened or is happening, while diagnostic analytics explains the reason behind what is happening. On the other hand, predictive analytics predicts a likely future scenario, while prescriptive analytics offers actionable recommendations for how to manage these scenarios. Ideally, the solution will span all of these capabilities, but the reality is that most current solutions excel at only one or two. With that said, many of the analytics vendors are rounding their solutions to support more capabilities.

Analytics solutions come as stand-alone solutions or as a component of a larger suite. Their vendor's heritage might be in the supply chain domain or in more horizontal areas, such as BI or data discovery.

Market Direction

The supply chain analytics market is highly fragmented, with many vendor categories vying for leadership and market share. No one vendor can currently offer a solution that spans the four capabilities required for supply chain analytics. Typically, the tools' strengths are aligned with the vendors' heritage in offering analytics-related solutions. Furthermore, many of these vendors do not have supply-chain-specific solutions. Rather, they have deployed their generic analytics capabilities in supply chain environments.

Over the next few years, the supply chain analytics market will become more defined. While fragmented now, as supply chain organizations become more mature in how they leverage analytics capabilities, vendors will work on offering a more cohesive set of capabilities that align with supply chain needs. We expect vendors like Qlik or Tableau Software that offer generic analytics capabilities to develop supply-chain-specific solutions that are stronger in predictive and prescriptive analytics. This is to gain more traction in the supply chain market, as companies become more mature and move beyond their current focus on visibility and descriptive analytics.

We anticipate that supply chain management vendors like Infor or Logility will improve reporting, visualization and root cause analytics capabilities. We also expect them to continue to extend their functionally aligned analytics capabilities to span end-to-end supply chain needs.

Another major driver in the maturing of the supply chain analytics market over the next three to five years is the emphasis on big data availability and importance in managing complex supply chains. Vendors vying for leadership in the supply chain analytics market will improve their ability to utilize big data and decrease their solutions' reliance on highly structured enterprise data.

The increase in adoption of supply chain management cloud-based solutions will drive analytics providers to offer their tools in this deployment model. This will provide clients with more affordable and more available computing power to tackle large-scale problems. Similarly, vendors will increasingly offer their solutions on mobile devices to support a distributed user base in day-to-day decision-making activities.

Across all vendors, we expect predictive and prescriptive analytics to become more sophisticated. This will be necessary as the Internet of Things becomes dominant, generating a deluge of data that is beyond human abilities to analyze, to recognize patterns and to identify the best course of action. Machine learning will become more prevalent in areas like demand forecasting, dynamic pricing and asset maintenance. Prescriptive capabilities, spanning optimization, heuristics and decision analysis will become more dynamic, accounting for more constraints, variables and complex objectives. Prescriptive analytics will increasingly become the basis for control systems for automated decision execution (see "Advanced Supply Chain Analytics: What It Is and Why It's Important to Understand").

Representative Vendors

The vendors listed in this Market Guide do not imply an exhaustive list. This section is intended to provide more understanding of the market and its offerings.

Table 1 lists vendors in the supply chain analytics market, organized based on a vendor's traditional focus. Most vendors are expanding their current focus to offer more types of supply chain analytics.

Table 1. Vendors in the Supply Chain Analytics Market

Vendor Focus	Examples	Focus	Comments
Optimization Solvers	■ FICO ■ Gurobi Optimization ■ IBM (CPLEX) Ilog ■ FICO Xpress Optimization Suite	Prescriptive analytics: building optimization and heuristics models to represent a supply chain problem and a defined objective and find the optimal solution from all feasible options.	These modeling platforms can be used to solve any supply chain problem that requires mathematical modeling. While the vendors have made strides to improve these tools' usability, by and large, these tools require deep analytical skill sets to build and maintain the models.
Simulation Solvers	■ AnyLogic ■ Arena ■ ExtendSim ■ Lanner	Predictive analytics: simulating the end-to-end supply chain or a specific process to understand the behavior of the system over time or in reaction to a discrete event.	These simulation solvers offer the user the ability to create scenarios and conduct detailed "what if" analytics. Powerful, yet viewed as a technical capability that requires deep analytical skills and intensive effort, these tools have yet to see wide adoption in supply chain.
Predictive Modeling	■ Blue Yonder ■ Emcien ■ Enterra Solutions ■ IBM Statistical Package for the Social Sciences (SPSS) ■ Predictix ■ Revolution Analytics ■ SAS	Predictive analytics: using statistical analysis and machine learning techniques to predict future events.	These solutions are gaining more traction in the supply chain with the advent of big data and the need to account for disparate drivers to predict future scenarios. Some of these vendors continue to augment their predictive analytics with prescriptive capabilities.
Enterprise Suites	■ IBM ■ Microsoft ■ Oracle ■ SAP	Different components of the suite focus on descriptive, diagnostic, predictive or prescriptive analytics.	Mostly through acquisitions, these vendors' vision has been to build end-to-end analytics capabilities that will serve varied business needs such as customer service, sales and finance in addition to supply chain. For example, IBM seeks to achieve this vision by leveraging its many acquisitions, including SPSS, Ilog, Cognos, DemandTec, StoredIQ and Star Analytics.
Business Intelligence	■ Birst ■ Every Angle	Descriptive and diagnostic: offering traditional BI capabilities, spanning	These vendors offer business analytics with varying supply-chain-specific functionality. This ranges from limited supply chain focus

Vendor Focus	Examples	Focus	Comments
	■ FusionOps ■ Information Builders ■ MicroStrategy ■ Qlik ■ Tableau Software ■ Tibco Spotfire	dashboards, reports, data discovery and visualization.	(MicroStrategy) to in-depth supply chain performance management (FusionOps).
Supply Chain Management	■ Infor ■ JDA Software ■ Kinaxis ■ Logility ■ Manhattan Associates ■ OM Partners ■ Dassault Systèmes (Quintiq) ■ Barloworld Supply Chain Software	Predictive and prescriptive: traditional offerings focused on prescriptive (optimization-based and heuristics) and predictive (traditional forecasting).	These vendors offer descriptive and diagnostic analytics that are aligned with functional areas (demand planning or manufacturing), and most are working on extending the capabilities to cross-functional and end-to-end processes.
General-Purpose Supply Chain Modeling	■ AIMMS ■ LLamasoft ■ River Logic ■ Jonova ■ Insight	Prescriptive: creating an as-is model and optimizing based on a specified criteria; some predictive capabilities ranging from "what if" analysis to simulation.	While positioned as providers of general-purpose modeling tools, vendors in this category are typically aligned with a few supply chain processes where they have the majority of their customer base, like network design or production planning.
Service Providers	■ Accenture ■ Deloitte ■ Infosys ■ Mu Sigma ■ Opera Solutions	Multiple analytics focus, based on the offering.	These service providers offer implementation and analytics services spanning the four types of analytics. Services include analyst resources for data mining and modeling, as well as analytics solutions that can be deployed alone or as an augmentation of an existing solution.

Vendor Focus	Examples	Focus	Comments
	▪ Tata Consultancy Services		

Source: Gartner (February 2015)

Market Recommendations

For supply chain strategists looking to invest in supply chain analytics capabilities, the highly fragmented nature of the solution market and the immaturity of some tools pose a significant challenge. Which category of vendors best aligns with the company's present and future needs? Is the company ready to invest in piloting or implementing a supply chain analytics solution? And what type of analytics will offer the best return on investment?

To answer these questions, a company must outline a multiyear road map for improving its supply chain analytics capabilities. Without the road map, any additional investments will likely result in piecemeal solutions that fail to support end-to-end supply chain current and future needs. Strategists can use the following list of recommendations to build a cohesive road map:

- Assess the supply chain organization's maturity level in, and the requirements for, the four analytics approaches: descriptive, diagnostic, predictive and prescriptive.
- Determine the supply chain analytics tools currently available to the supply chain group, and assess if they can support current and future needs.
- Identify non-supply-chain-specific analytics solutions and determine if they can be leveraged for supply chain purposes.
- Determine their return on investment and the hurdles faced in their adoption for all the analytics tools used to support supply chain needs.
- Determine if the data required to support the analytics tool exists, and identify the data sources. Align supply chain data management efforts with the organization's overall data strategy and governance.
- Identify the highest-priority use cases for which the company plans to leverage supply chain analytics. For these use cases, start with a phased approach where you implement a small pilot to demonstrate expected returns, and identify hurdles and requirements for success. This will help with building a realistic business case for additional technology investments.

These actions can clarify the specific needs and the most appropriate solution for the company to investigate. In their quest for a solution, supply chain strategists must keep in mind that many of the analytics solutions are emerging technologies and thus should be evaluated as systems of innovations, according to Gartner's pace layer framework (see "Pacing Yourself Is Key to Selecting Supply Chain Planning Solutions"). Likely, the solution's scalability, data governance and ease of integration will not be advanced as they are in more established technology tools.

Gartner Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"The Supply Chain Strategist's Guide to Analytics Maturity"

"The Drivers Shaping Future Adoption of Supply Chain Analytics"

"Best Practices in Network and Inventory Modeling in the Supply Chain"

"Advanced Supply Chain Analytics: What It Is and Why It's Important to Understand"

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