

Three Checklists to Build a Successful Supply Chain Analytics Foundation

WHITE PAPER

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Executive Summary

Building robust supply chain analytics capabilities is more important than ever. Economic pressures including rising fuel costs, global expansion, off-shore low cost competition, and tight manufacturing capacities continue to stretch a supply chain team’s ability to reduce costs while meeting ever-increasing customer expectations. To complicate matters, finding and retaining qualified supply chain talent continues to be an issue. Top supply chain talent tends to migrate to companies that have invested in modern solutions that allow users to spend their time creating value versus shifting through spreadsheets to format, align, validate and report on last week’s data.

Supply chain analytics is the application of mathematics, statistics, predictive modeling and machine-learning techniques to find meaningful patterns in the vast mountains of data produced by enterprise systems and external sources. Tapping into both structured and unstructured data sources, advanced analytics help you draw conclusions about your demand, inventory, production and distribution operations to quickly drive more informed business decisions. An important goal of a supply chain analytics initiative is to enable better business decisions that improve operating results and allow you to be more responsive to customer needs.

This white paper dives into the importance of building robust supply chain analytics capabilities to support profitable revenue growth and exceptional customer service, and offers three easy-to-use checklists to help get you started.

Table of Contents	
Understanding Supply Chain Analytics Maturity	5
Checklist 1: People, Process, Data—Building the Foundation for Advanced analytics	6
Checklist 2: Supply Chain Advanced Analytics Platform Capabilities	7
Checklist 3: Choosing the Correct Supply Chain Key Performance Indicators (KPIs).....	8
Customer Story: The Carlstar Group Becomes Data-Driven	9
Building the Business Case for Advanced Analytics	10

Table of Figures	
Figure 1. Making the case for increased adoption of advanced supply chain analytics	3
Figure 2. Analytics maturity curve.....	5

Overview

Interest in supply chain analytics continues to grow at an exponential rate. Research has shown a strong correlation between more advanced analytics and higher Return on Investment (ROI). Higher analytics maturity levels often lead to improved product quality, increased revenues and service levels while decreasing inventory.

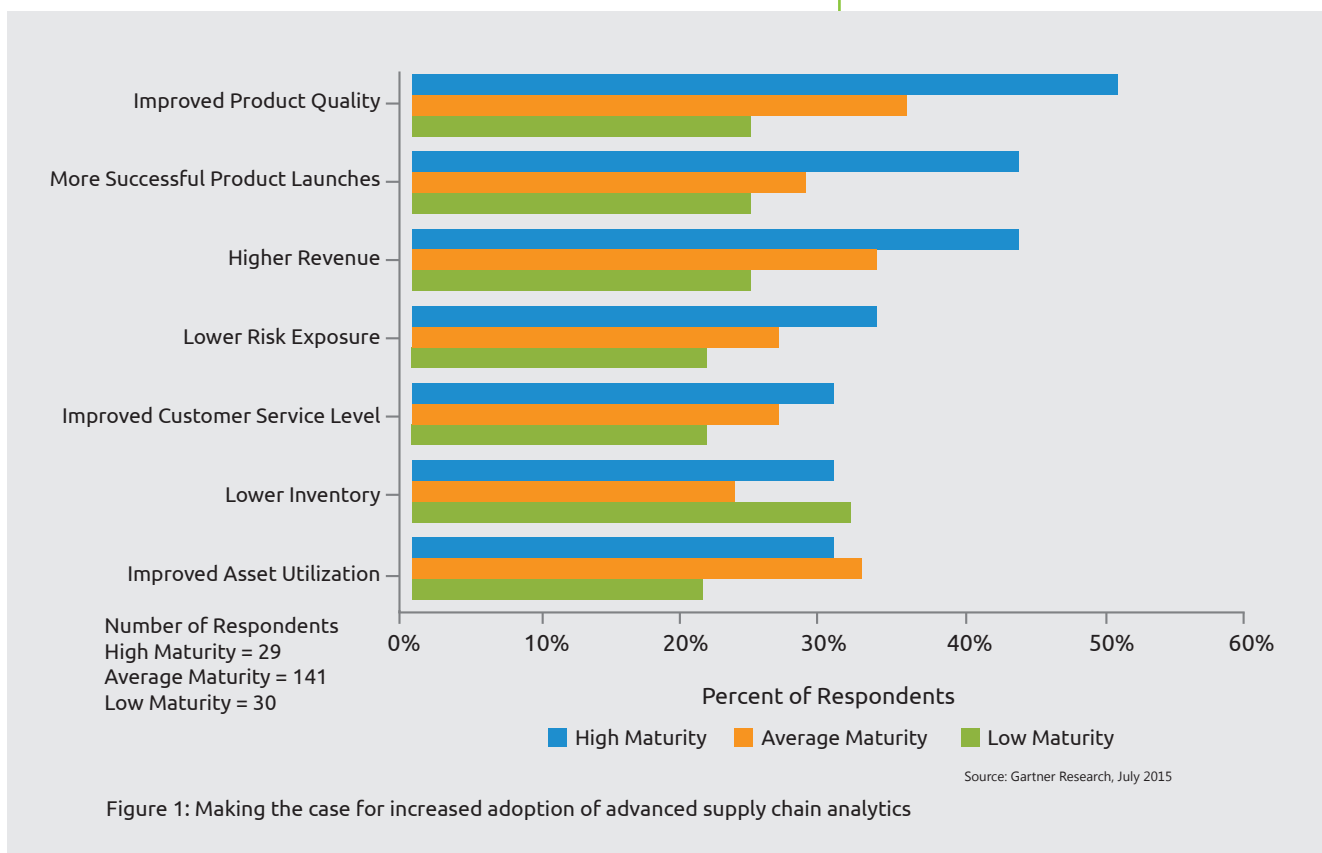


Figure 1: Making the case for increased adoption of advanced supply chain analytics

Research has shown a strong correlation between more advanced analytics and higher Return on Investment (ROI).

Understanding Supply Chain Analytics Maturity

Most organizations analyze their supply chains using reports and key performance indicators (KPIs) to determine what happened. This basic form of supply chain analytics is known as ‘Descriptive Analytics.’ Many organizations have also deployed data warehouse and business intelligence (BI) systems that provide the tools to diagnose what happened and why.

While this information is useful, you miss the opportunity to determine how to shape a future response. More mature and advanced users of analytics have made concerted efforts to transform data into predictive and prescriptive insights. Over time, these companies have evolved from using backward-looking reports and metrics to forward-looking decision-making capabilities that suggest an optimal plan of action and add significantly more value.

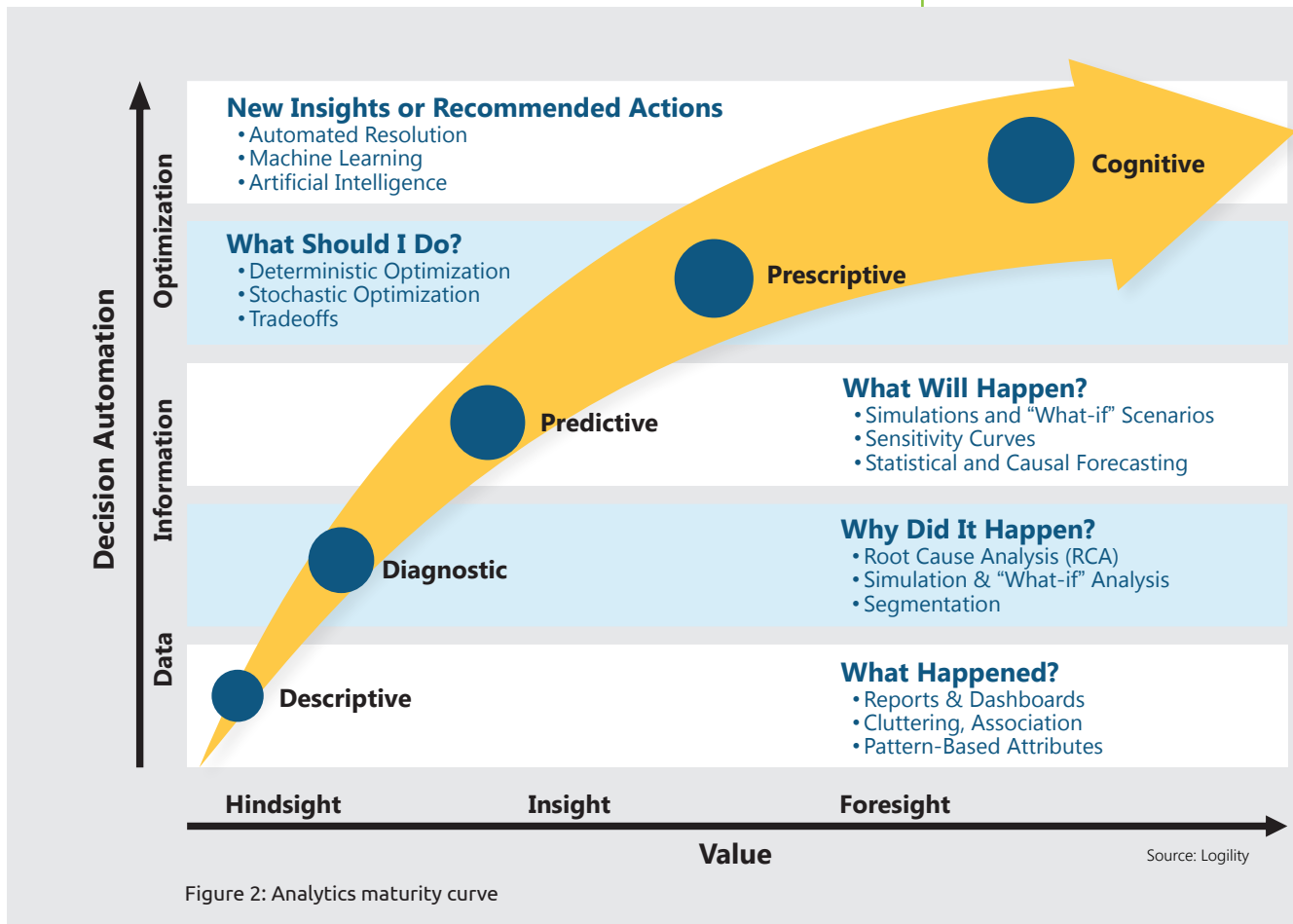


Figure 2: Analytics maturity curve

Checklist I: People, Process, Data— Building the Foundation for Advanced Analytics

To harness the power of advanced analytics you must invest in your people, in developing analytics enabled processes and in a robust data management strategy. Advanced algorithms will add limited value until a strong foundation is in place.

People: Do you have the right people (and roles)? A basic foundational component of any effort to mature supply chain analytics capabilities is to identify, secure and organize the necessary supply chain talent.

- Who should lead the advanced analytics initiative and what skills does this leader need?
- Have you defined the roles to enable an analytics-driven process and culture? Supply Chain Analyst, Data Base Engineers, Data Scientists, etc.
- Do you have the required skills available within the company or must they be sourced externally?
- How should the team be organized to efficiently run the business while also driving innovation? Do you need an Analytics Center of Excellence?

Process: To determine the best opportunities for advanced analytics, you must have a process that involves collaboration and the ability to create and agree to a strategic plan. Be prepared to explore and discover:

- What problems could be solved faster and with better answers?
- What opportunities could be tackled with new advanced analytic capabilities?
- How to take advantage of available resources to get up to speed on advanced analytics?
- How to prioritize opportunities based on alignment to company objectives?
- Can you socialize and gain management support for high priority initiatives?
- Can you pilot advanced analytics before full adoption and systemization?

Data Management: To gain insight from supply chain data it must first be consistent and accurate. Very few companies can say their data is consistent and accurate.

- What type of data do you have? Internal/External; Structured/Unstructured?
- Who is responsible for data consistency and accuracy?
- Where is transactional and master data stored? Supply Chain System of Record, Master Data Management solution, etc.

According to an IBM report based on a survey of 696 business leaders by Harvard Business Review Analytic Services:

- Only 15% of organizations employ sophisticated analytics
- Only 48% believe that their employees have the right information to make good decisions
- 77% say that their ability to turn insight into real business value is hit or miss

Checklist 2: Supply Chain Advanced Analytics Platform Capabilities

With foundational components addressed and objectives and goals established, it's time to evaluate your current supply chain solution to determine whether it can support your envisioned advanced analytics capabilities. Below are a few capabilities you should evaluate:

- **Supply Chain Master Data Management (MDM) and Standard System Integration:** Provides consistent, harmonized, standardized and managed data across your complete supply chain including suppliers, customers and trading partners
- **Common Data Platform:** Enables visibility and performance measurement of cross-functional processes and collaboration with trading partners
- **Data Discovery:** Provides the ability to use artificial intelligence and machine learning to mine internal and external data sources, including IoT and Big Data, to discover hidden patterns and trends
- **In-Memory Processing:** Enables fast response times to analytic operations
- **Cloud-Based:** Enables fast deployment and flexible scalability
- **Mobile Device Support:** Provides 24x7 visibility to supply chain operations and powerful collaborative capabilities
- **Configurable User Interface:** Supports cross-functional analysis requirements
- **Process Automation:** Uses collaborative work-flows, configurable limits and intelligent alerts to improve response time for cross-functional decision-making and execution; frees up resources to focus on higher value-added activities
- **Advanced Visualization:** Provides the ability to view data and analysis output numerically and graphically in multiple units of measure, over various time-frames and at different aggregations to support all analysis requirements
- **Supports All Five Levels of Analytics**
 - **Descriptive:** Reports & Dashboards, Clustering & Association, Pattern-Based Analysis
 - **Diagnostic:** Root Cause Analysis, Simulation, What-If Analysis, Segmentation
 - **Predictive:** Simulations, What-If Scenarios, Sensitivity Curves, Statistical Forecasting
 - **Prescriptive:** Deterministic and Stochastic Optimization, Tradeoffs
 - **Cognitive:** Machine Learning, Automated Resolution, Artificial Intelligence, Smart Advisors

Evaluate your current supply chain solution to determine whether it can support your envisioned advanced analytics capabilities.

Checklist 3: Choosing the Correct Supply Chain Key Performance Indicators (KPIs)

Supply chain organizations have hundreds of potential KPIs to help manage the complex dependencies between teams, departments and trading partners. Which are best for your organization? Advanced analytic capabilities help to identify the right KPIs to effectively manage the supply chain.

Below is a list of the most common KPIs used to manage best-in-class supply chains. How many of these boxes can your company currently check?

Improving Customer Experience and Responsiveness:

- Customer Order Cycle Time**—Time to deliver a customer order after purchase order is received
- Perfect Order Measurement**—The percentage of orders that are error free—on time, in full and received in good condition
- Customer Fill Rate**—Percent of customer’s order that is filled on the first shipment request date
- Supply Chain Cycle Time**—Time to fill a customer order if inventory levels were zero

Improving Quality and Yield:

- Production Yield**—Percent products manufactured correctly the first time without scrap or rework
- Schedule Attainment**—Comparison of production compared to plan date, quantity and quality
- Supplier’s Quality Incoming**—A measure of the percent of good materials from a given supplier
- Supplier On-Time**—Percent of supplier’s order that is filled on the first shipment request date

Reducing Inventory:

- Inventory Turnover**—Number of times that a company’s inventory cycles/year (Total, FG, WIP, Raw)
- Inventory Days of Supply**—Number of days to run out of supply if not replenished (Total, FG, WIP, Raw) from customers

Advanced analytic capabilities help to identify the right KPIs to effectively manage the supply chain.

Reducing Costs and Increasing Profitability:

- **Forecast Accuracy**—Measure of how well a company can predict demand
- **Total Supply Chain Cost**—End-to-end cost encompassing all operating costs associated with plan, source, make and deliver. Usually calculated as a percent of revenue.
- **Cash-to-Cash Cycle Time**—Days between paying for materials and getting paid for product
- **Days Sales Outstanding**—A measure of how quickly revenue can be collected from customers
- **Supplier's Reliability**—A measure of the percent of good materials from a given supplier received on time

Supply chain organizations have hundreds of potential KPIs to help manage the complex dependencies between teams, departments and partners.

Customer Success Story: The Carlstar Group Achieves Analytics-Driven Results

The Carlstar Group is the industry leader in specialty tires and wheels for the agriculture, construction, lawn and garden, ATV and UTV, high-speed trailer, aftermarket automotive wheels and flat free/manual markets.

Before implementing Logility's Advanced Analytics solution, Carlstar was like many companies that relied on a fluid mix of ERP system-generated data, spreadsheets and emotion to operate its business. This unreliable data affected the entire company, however the greatest impact was felt in sales, operations and IT.

Business Situation:

- Inefficient reliance on word-of-mouth and Excel for key operations data
- Lack of data accuracy and access
- Difficult to see trends and seasonality patterns
- Limited understanding of customer buying habits

Benefits Achieved:

- Reduced inventory by \$10 Million and past-due orders from \$12 Million to \$500,000
- Improved sales culture and sales performance through better supply and demand alignment
- Self-service access to system reduces burden on IT
- Higher profits from better grasp of cost-to-serve tradeoffs

Why Logility Advanced Analytics:

- Cloud-based solution with built-in ERP connectors
- Speed of implementation; entire analytics platform delivered in six weeks
- Easy to use and great technical support
- Continued access to new analytics innovations

"Our inventory value has dropped about \$10 million due to better visibility of obsolete inventory thanks to Logility's Advanced Analytics pre-built supply chain solutions."

— Brent Glendening,
Chief Information
Officer

Building the Business Case for Advanced Analytics

It is clear that advanced analytics can create a competitive advantage by accelerating time to insight. Insights gained from supply chain data can enable organizations to mitigate risks, uncover hidden opportunities, deliver better customer service, and meet business goals. It's no surprise that companies are aggressively investing in analytics capabilities.

Summary

When built into the fabric of the supply chain, advanced analytics places actionable information at the fingertips of planners, senior executives and stakeholders across the enterprise. Advanced analytics converts huge repositories of data into easily consumed knowledge that accelerates your time-to-alert, time-to-resolution and prioritization of high-value actions. Easier access provides vital input to the sales and operations planning (S&OP) process, and helps find the “needle in a haystack” root causes of problems, rather than just flagging the symptoms.

When you consider your analytics capabilities, here's one final checklist:

Business Situation:

- Does your supply chain platform have the ability to scale to meet future desired advanced analytics innovations?
- Can your supply chain platform consume a steady stream of real-time structured and unstructured data to enable both periodic and continuous planning?
- Does your supply chain platform provide support for automated processing through collaborative workflows, configurable limits and intelligent alerts?
- Does the user interface support a variety of business user's needs through intuitive yet powerful visual and numerical analytics and algorithms?

About Logility

With more than 1,300 customers worldwide, Logility is a leading provider of collaborative supply chain optimization and advanced retail planning solutions that help small, medium, large, and Fortune 500 companies realize substantial bottom-line results in record time.

Logility Voyager Solutions™ is a complete supply chain management and retail optimization solution that features advanced analytics and provides supply chain visibility; demand, inventory and replenishment planning; sales and operations planning (S&OP); integrated business planning (IBP); supply and inventory optimization; manufacturing planning and scheduling; retail merchandise planning, assortment and allocation.

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