Supply chain excellence is a powerful competitive advantage in a global marketplace. Thousands of miles away from customers, hundreds of turbulent events create volatility in supply markets, which affect material and service availability and costs. Creating strategic advantage amid these volatile environments requires real-time insights from operational data to improve performance visibility and insight.
The global web of manufacturing and logistics teams can be stalled by delayed shipments, inefficient plants, and inconsistent suppliers, among other things. This can be costly, frustrating, time-consuming, and, under certain circumstances, even risky. Multiple studies show that the most significant challenges for supply chain executives today involve the following:

- Providing visibility into supply chain performance and benchmarking
- Reducing operating costs through process optimization across the plan, source, make, and deliver functions
- Enhancing customer satisfaction by improving supply chain responsiveness and product quality

In the 2014 Chief Supply Chain Officer (CSCO) survey conducted by SCM World, 65% of respondents (n=1,100) indicated big data analytics in the supply chain was the most disruptive and important trend in supply chain strategy. The importance of volatile demand as a concern in 2014 coupled with the hope that better visibility may come from drilling into huge new data sources makes big data a big winner.

A 2014 study by Markets and Markets projected that the supply chain analytics market would grow from $2.5 billion in 2014 to $4.8 billion by 2019, at a compound annual growth rate (CAGR) of 14.6% during the forecast period, indicating the growing focus for organizations to embed intelligence in their supply chain processes, and the evolution of the supply chain from a tactical lever to a strategic transformation agent.

The insights derived from embedding analytics in the supply chain are helping companies optimize their supply chain functions and close the gaps to manage market pressures and contribute to financial performance.

However, we hypothesize, validated by thousands of client interactions, that without a new process architecture reimagined in the context of analytics and technology and supported by an advanced organizational model, business leaders will continue to be frustrated at making only incremental gains with their technology investments, especially when it comes to analytics, in a world where companies are looking for significant improvements in revenue, productivity, and competitiveness from incremental investments.

The visibility driver: Moving towards a “smarter” supply chain

Globalization has created an explosion in the number and types of suppliers, manufacturing units, and distribution locations. While the business growth opportunities are convincingly strong, growing product variance tailored to globally dispersed customers has created a complex web of regional supply chains that must be closely and carefully monitored.

Aberdeen’s recent CSCO profile survey suggests organizations are looking to improve visibility into their supply chain, beyond the organization and into the supplier and customer levels.

Increasing supply chain efficiency begins with enhancing basic metrics and reporting, as they provide the essential data for performance improvement initiatives and end-to-end visibility of their extended supply chains. However, irreversible globalization is making it necessary to go beyond the basics to achieve maximum impact. Advanced analytics-driven “control towers” can monitor real-time critical events and KPIs through multiple touch points. When combined with predictive analytics, control towers can provide valuable savings in areas such as freight optimization for the customer; a centralized KYC would contribute in a big way. Organizations that are knowingly investing in visibility can make decisions to increase supply chain responsiveness, optimize cost, and minimize customer impact.
The volatility driver: Rethinking demand and inventory management

Demand volatility has increased significantly and permanently, making demand and inventory management a challenge. Poor forecast accuracy continues to plague organizations, and traditional demand management practices are no longer enough to guarantee success.

Some industries, such as consumer goods, retail, automotive, and logistics, require daily or even real-time forecast regenerations to perform “at market.” For the pharmaceutical and healthcare industries, however, there are additional important quality and human health implications when considering demand and inventory management. Life-enhancing drugs must be readily available. There can be zero tolerance for bottleneck manufacturing when demand is high. Counterfeit and grey market drugs also must be kept in check through increased visibility, especially during a period when regulatory controls have increased and customers are more empowered in making choices. Investing in production- and supply chain–related operational controls and balanced sourcing is way overdue in these industries and others. There is an immediate need to have key inventory and forecasting metrics more visible and to optimize replenishment values.

Advanced analytics can be applied to these areas to more accurately anticipate demand, predict and monitor supply and replenishment policies, and plan inventory flow of goods and services. The latter is especially relevant for customer-focused organizations, allowing them to leverage their historic data sources to optimize service levels, augment investment decisions, and improve supplier performance and quality controls.

Companies will also be able to run simulations on best-fit solutions, program contextual exception-handling alerts, and use multi-criteria inventory ranking with the assistance of advanced analytics.

Demand and inventory management is arguably the most important challenge in achieving global supply chain flexibility. Winning organizations will proactively exploit their data assets.

The cost driver: Optimizing sourcing and logistics activities

Supply chain leaders face spiraling costs across the board. These costs significantly impact key financial metrics, such as working capital, cost of goods sold, and cash flow. Especially in industries with large inventories of raw or finished goods, there is a constant need to improve financial performance.

Certain pharmaceutical providers have concluded that operations and supply chain management are best outsourced to contract manufacturing providers. Outsourcing provides more favorable financial options rather than investing in increasingly more expensive in-house owned production and quality monitoring processes. Similar behavior can be observed in the semiconductor industry. Expensive owned fabrication facilities became too cost-prohibitive and were changed out in favor of today’s outsourced facilities. With the systematic analysis and optimization of the SCM processes, additional savings can be achieved.

Key areas where costs can be definitively controlled today with the help of analytics-driven intelligence include the following:

Materials: Analytical tools can improve visibility into the true total component cost of products, rather than just price. A complete view of the supply chain cost of any given material is essential for making optimal purchase decisions on a should-cost basis. By placing complete information at the fingertips of supply chain managers, organizations can significantly reduce the total cost of materials purchases through improvements in supply chain practices and better price negotiation outcomes.

Logistics: Fluctuating demand patterns and an expanding base of suppliers and logistics partners have driven companies to continuously rethink their logistics network strategies. Companies can realize strong ROI improvements through analytics-driven planning activities, such as route optimization, load planning, fleet sizing, and freight cost reconciliation. Instead of piecemeal isolated changes to network metrics, analytics teams can centrally monitor and adjust network designs periodically for increased
cost reduction. This will define lean, efficient logistics management for organizations within the next few years.

**Sourcing:** As businesses expand into new, volatile markets with diversified product portfolios, managing a multitude of suppliers around the world becomes challenging. Signing on each new supplier has considerable costs and potential risks. While an industry might play several suppliers against each other to achieve the lowest price, without proper balancing of sourcing and related operational controls, the results could be counterproductive.

Sophisticated analytics programs generate real-time supplier performance management data that supply chain managers can generously use to improve their sourcing strategy. This data empowers sourcing professionals by providing analysis from initial screening to ongoing risk management. Potential supplier risk is assessed through a combination of financial analysis and capability constraints. A holistic, data-led supplier selection process, rather than one based solely on cost, is the result.

**Key to supply chain excellence: Data-to-Action**

Our experience shows that the typical approach of viewing analytics as a task and a set of technologies is misguided and often results in expensive pockets of excellence unable to scale and generate material enterprise-wide impact. This can be countered by an approach, that treats analytics as a process, and aims at underpinning with analytics the fabric of other enterprise processes.

The Data-to-Action Analytics loop enables companies to generate insight and drive management visibility (the Data-to-Insight process) and then subsequently embed the insight for specific, granular actions that affect company effectiveness (Insight-to-Action), such that it can be used at scale to drive execution. The end-to-end process view across Data-to-Insight and Insight-to-Action can help design effective analytics solutions and provide targeted change management to embed them into business processes.

**Data-to-Action Analytics loop**

1. **Identify target outcome**
2. **Run Data-to-Insight**
   - Correct strategy and targets
   - Gather feedback
3. **Improve execution practices**
   - Measure
4. **Continuous learning**
   - Operate
   - Execute actions
   - Implement
   - Analyze
   - Provide visibility
   - Steer effectiveness
   - Consolidate, report

Data-to-Action Analytics loop
An agile and practical approach to analytics-driven transformation rests on four tenets:

1. Reimagine analytically enabled business processes (not analytics alone) by focusing rigorously on business outcomes
2. Harness technology effectively through a purpose-built enterprise analytics insights engine
3. Take an objective, practical, and holistic look at the entire analytics “stack” and its own operational process to serve multiple stakeholders across the enterprise
4. Enable scalability and enterprise-wide impact by leveraging robust organizational models, such as reengineering, shared services, outsourcing, and global delivery

When enabled by smart processes, pragmatic analytics, targeted technology, and deep domain expertise, companies can achieve the following:

- Collaborative planning and decision making across functions, through integrated business planning solutions such as product portfolio planning, demand planning, supply planning, scenario planning, and executive integrated business planning, can drive a 15% improvement in forecasting accuracy and a 25% reduction in inventory

- Enabling the right sourcing decisions through strategic sourcing solutions, such as strategic sourcing support, procurement market intelligence, commercial/deflation support, and supplier management solutions, can reduce direct spend by 8% and improve supplier performance KPIs by as much as 15%

- Optimizing process lead times through manufacturing process optimization offerings like lead time reduction, manufacturing quality improvement, manufacturing productivity improvement, and establishing manufacturing centers of excellence can reduce manufacturing lead times and cost of poor quality (COPQ) by 20% and improve overall equipment effectiveness by 10%

- Improvement in logistics processes through logistics planning solutions can enable cost reduction through levers such as improvement in customer service levels and network redesign (12%), effective carrier sourcing (10%), and efficient warehouse design and planning (6%)

### Supply chain analytics solutions

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**US-based specialty chemicals company enhances market insights and price-forecasting**

**Challenge:**
Limited capability to perform up-to-date market assessment and forecasting for major raw materials critical for making sourcing decisions.

**Solution:**
To keep costs under control while mitigating the risk of disruption in the supply chain, the company needed to monitor raw material supply trends and predict price movements.

Analysts consolidated historical data related to capacity, production, and consumption of the raw material across regions.

Value chain and market structure analysis segmented by region and market segments helped establish trends for future demand and supply.

Indexing and benchmarking were performed using advanced analytics to enable the client to predict future commodity prices.

**Impact:**
These insights helped the business understand the key factors that affect the price of commodities and provided price-forecasting to help sourcing teams negotiate better.

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**A global high-tech company improves forecast accuracy by 30%**

**Challenge:**
Forecasting and demand fulfilment processes unable to keep up with the short product life-cycle nature of the industry. This was further complicated by a lack of an integrated business planning process to support the organization’s high growth business model.

**Solution:**
To keep up with competition in a high-growth environment, our client needed an integrated solution to improve forecasting and demand fulfillment, while mitigating the risk of disruption in the supply chain, which could be catastrophic to growth.

Analysts consolidated historical data related to existing business planning processes, as well as current supply chain operations, and implemented Genpact’s proprietary advanced analytics-enabled Inventory Optimizer for complete visibility over the supply chain globally.

**Impact:**
The solution resulted in 30% improvement in forecast accuracy and a reduction in finished goods inventory by $2 million in just three quarters.
Case Study: A global energy OEM

Challenge:
With direct material costs a key driver of profitability and volatility, our client was looking to reduce costs across all direct materials, especially those related to sourcing and procurement, and required increased visibility into the cost drivers for the various components.

Solution:
To enable the dual objectives of cost reduction and increased visibility into the direct material sourcing process, the client needed a strategic sourcing solution that would drill down into the demand for and costs of various parts used and provide control over costs and schedules across the value chain.

Analysts consolidated historical data related to supply chain sourcing and procurement processes to identify the key cost drivers and high potential parts.

Genpact also developed a customized should-cost model for engineering commodities and facilitated negotiations with suppliers, and through the custom model helped the client track savings per negotiated prices with suppliers.

Impact:
The strategic sourcing solution implemented resulted in 62% time savings in parts cost negotiation, with $1 million savings in direct material costs.

Conclusion
Research shows that the significant challenges of supply chain executives revolve around visibility, flexibility, and integration of global supply chains; demand volatility; and cost pressures. Expanding global businesses, fluctuating demand patterns in different regions, and growing markets add to the complexity of the already complex supply chain world.

Implementing Data-to-Action Analytics℠ is a way to solve these challenges, as the necessity to forecast and predict market needs is greater now than ever. In the past, enhanced basic metrics and reporting were sufficient to increase supply chain efficiency. Today, supply chain executives need to knowingly invest in advanced analytics to be better positioned and empowered to make the necessary critical decisions.

Data-to-Action Analytics℠ industrializes Data-to-Insight and Insight-to-Action processes to provide supply chain executives increased visibility, enable actionable insights with advanced analytics tools such as cost sensitivity analysis, should-cost analysis, and dynamic fleet routing; resulting in supply chain processes that sense, run, and learn from the outcome of actions, at scale to meet the needs of the changing supply chain and maintain a competitive edge.
About Genpact

Genpact (NYSE: G) stands for “generating business impact.” We design, transform, and run intelligent business operations including those that are complex and specific to a set of chosen industries. The result is advanced operating models that support growth and manage cost, risk, and compliance across a range of functions such as finance and procurement, financial services account servicing, claims management, regulatory affairs, and industrial asset optimization. Our Smart Enterprise Processes (SEP®) proprietary framework helps companies reimagine how they operate by integrating effective Systems of Engagement™, core IT, and Data-to-Action Analytics℠. Our hundreds of long-term clients include more than one-fourth of the Fortune Global 500. We have grown to over 68,000 people in 25 countries with key management and a corporate office in New York City. Behind our passion for process and operational excellence is the Lean and Six Sigma heritage of a former General Electric division that has served GE businesses for more than 16 years.

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