Introduction

Supply chain incidents and delays are increasingly painful and costly – reducing efficiency, hurting customer satisfaction, and resulting in lost revenue. Companies traditionally rely upon high-level metrics to monitor the supply chain, but those metrics only provide a partial view, with no ability of real-time drill-down into causation and effectively address the root causes of supply chain incidents.

McKinsey supply chain expert Knut Alické calls multi-tier transparency, i.e., visibility into the precise drivers within each layer of the supply chain, the “holy grail of supply-chain risk management.” This requires real-time data – of the whole supply chain – with the ability to quickly and easily drill-down iteratively and diagnose the precise causes of an issue. With multi-tier insights, corrective action may be quickly taken to resolve supply chain issues.

“Sisu retroactively surfaced the smoking gun behind the average bookings drop on the first go, highlighting one of our many inventory providers as the culprit.”

Athene Cook, Senior Data Analyst, HomeToGo
The multi-tier supply chain: the layers of data

Supply chain challenges are commonly categorized at the highest level as either product defects or supply chain disruptions and delays. Supply chain segments and their many respective data sources, include: product design, sales, inventory and operations planning, sourcing, manufacturing, warehousing, transportation, eCommerce point-of-sale, and consumer.

Every tier of the supply chain creates a range of data types, and those data sources are often intertwined within the supply chain tiers. Some examples follow.

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<tr>
<th>CATEGORY</th>
<th>EXAMPLE SOURCES</th>
<th>DATA TYPES</th>
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| **Internal systems**   | • ERP: SAP, Oracle, NetSuite  
                        | • Marketing Automation: Oracle Eloqua, Adobe Marketo, Salesforce Marketing Cloud  
                        | • CRM: Oracle, Salesforce Sales Cloud  
                        | • Accounting: Intuit Quickbooks,  
                        | • Finance: Anaplan  | Sales, inventories, supplier quotes, marketing offers, returns, |
| **eCommerce and web properties** | • POS: Stripe, Square  
                        | • Social: Facebook, Twitter, Snapchat, Instagram  
                        | • Marketplace data: Zuora, Shopify, Magento, Amazon, Walmart  | Sales, clickstream data, consumer comments, marketing offers |
| **Location data**      | • GPS, mobile  | Consumer purchase location, inventory locations, shipping locations |
| **Sensors**            | • Camera, temperature, humidity, weight, shock  | Product quality, status |

Most of these data sources are big data sources, having characteristics of high volume, velocity, and variety. Combining these data sources together to get a full picture of supply chain activity results in a very large, highly dimensional dataset that challenges traditional analytics approaches.

AI/ML for Supply Chain Analytics

Machine Learning and Artificial Intelligence (AI/ML) provide ways to efficiently analyze supply chain data at massive scale. They excel in solving complex, data-rich and logic-based business problems. However, to properly implement and operationalize AI/ML for supply chain, two big hurdles must be overcome – the ability to handle big data as well as to easily apply machine learning to that data.
Solving Multi-Tier Supply Chain Transparency

The solution to solve the multi-tier transparency problem is visibility into all of the data, along with extracted insights about “why,” i.e., the root causes of the issue, taking into account challenges around both handling big data as well as AI/ML skills.

The solution for multi-tier supply chain transparency must therefore be:

- **Comprehensive**, to handle all the big data involved in every tier of the supply chain.
- **Fast**, to be able to rapidly iterate on questions and drill down to find insights
- **Easily accessible, use-able, and actionable**, for use by anyone interested in monitoring and diagnosing metric changes.

Sisu Data offers such a solution, with a powerful decision intelligence engine with built-in machine learning to help you quickly dig into the key drivers of change in your vital business metrics.

About Sisu

Created from years of research at Stanford University, Sisu helps businesses understand, in real time, what’s driving changes in their supply chain metrics or other key business indicators.

Tuned at massive scale with customers like Wayfair, Samsung, and Upwork, Sisu empowers data scientists, analysts, and executives alike to understand why critical business metrics are changing and guide you towards fast, decisive action. Founded by Peter Bailis, CEO. Funded by Ben Horowitz, a16z, Pete Sonsini, NEA

Learn more

If you’d like to see Sisu in action and explore how you can use the power of machine learning to optimize your supply chain, reach out to Sisu Data today at sisudata.com/get-started.