



Improving Agility and Resilience in Supply Chains

Executive Summary

Long before Covid-19 turned the world upside down, the supply chain sector has been focused on digital transformation. From suppliers to logistics providers to retailers and manufacturers themselves, the extended supply chain is pursuing a vision of omnichannel connectivity to deliver innovative customer experiences, streamline operations, reduce costs, and improve flexibility and resiliency. The goal? Trading partners become connected. Processes become streamlined and efficient. And line of business executives are able to more quickly and accurately answer fundamental questions such as:

- Do I have enough inventory?
- Is my staffing adequate?
- Why was this promotion successful?
- Am I operating as efficiently as possible?
- What does a successful product launch look like?
- Can I improve my customer service levels and remain profitable?
- How do I position my organization to become more agile and resilient?

This last question has been the primary focus of industry leaders that foresaw the importance of being able to adapt, transform, and thrive in a constantly evolving environment. Unfortunately, adoption has been slower than anticipated, and external shocks like an unforeseen pandemic have exposed the weak links in systems and processes. However, as technology has advanced and companies more acutely understand the benefits of agility and resiliency, they're rethinking their data strategy. A new one emerges: one that improves the accuracy and integrity of data, the automation and optimization of processes that leverage it, and sophisticated predictive and prescriptive analyses to guide decision making and further automate and improve processes. These three pillars are what will fundamentally change the trajectory of retailers and manufacturing organizations and determine who will best survive today's pandemic and be best positioned for tomorrow's uncertainty.

THE CONCEPT OF A “CONTROL TOWER” HAS EMERGED – A WAY TO GAIN VISIBILITY ACROSS PLATFORMS AND DATABASES AND THAT PROVIDES AN INTEGRATED, ACCURATE, AND REAL-TIME VIEW INTO THE ENTIRE ENTERPRISE, AS WELL AS PARTNERS’ DATA AND SYSTEMS.

Access to Accurate and Current Data is the Lifeblood of the Business



Most organizations don't trust the data they are seeing and lack the technology to extract the intelligence they need. The business needs the basics, such as visibility into inventory levels, sales, and production output. The visibility into individual sources and items adds an additional level of complexity and opportunity. Through data-capturing devices (including IoT), businesses have access to real-time data that provides valuable details regarding orders, shipments, location, and more. Unfortunately, this has also yielded more data than any human being (and many existing systems) can manage, making it difficult for companies to truly get the most out of these assets.

Lack of visibility also correlates with a company's lack of agility; in fact, according to a recent IDC report, the most critical gap in the supply chain is the “lack of supply chain visibility and resiliency to see necessary changes in time to react to them effectively.”¹ The issue becomes even more complex when one considers the myriad systems and databases that most companies operate, exacerbated by mergers and acquisitions over the years with minimal system rationalization or integration. Thus, the concept of a “control tower” has emerged – a way to gain visibility across platforms and databases and that provides an integrated, accurate, and real-time view into the entire enterprise, as well as partners' data and systems. Without an overarching and accurate view of the business, it's difficult to plan for growth and practically impossible to respond to a supply chain disruption like a pandemic.

The benefits of access to real-time, integrated, accurate, and trustworthy data underscore the need for data reliability. It's not enough to just be collecting data; it must be absorbed and analyzed so that it can be acted upon to have an impact. Line of business executives shouldn't need to know where the data came from – or how many systems or what kind of gyrations it underwent to make it usable. They just need to know if an order will be delivered on time, or if they have the right assortment in the right store, or if there is enough inventory to run a promotion. Analytics based on real-time and historical data can go a long way to reducing out-of-stocks and explaining sales results. Sometimes the answer to a non-performing promotion is as simple as a missing display unit or product on end caps in some stores but not others, or even damaged packaging. When users have the answers they need, data becomes a strategic differentiator for the business.

Transition From Islands to Automation to End-to-End Connected Processes



Operational inefficiencies plague many retailers, manufacturers, logistics providers, and suppliers. The culprit? Often, it's disconnected processes that are siloed both in design and technology. These processes are unaware of external workflows that could have a substantial impact on the business.

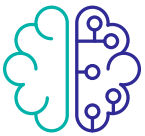
Transitioning from islands of automation to streamlined end-to-end supply chain processes is a daunting task but can be tackled in manageable steps. One primary target of transformation is the sales and operations planning (S&OP) process, which tends to be the centerpiece of most supply chain organizations, bringing together stakeholders and data from across sales, production, procurement, and other departments. Because of this, S&OP is a good place to start; a little effort can make a big difference in the business, and it is an essential process that can immediately benefit from a cross-departmental infusion of data.

¹Supply Chain Orchestration with the Modern Control Tower July 2020, IDC #US46639417 By Simon Ellis

Unfortunately, many processes and the supporting technologies are designed to work in silos. The associated systems generate data independently, then produce reports independently, and therefore it should be no surprise that decisions are made independently. Problems that cross departments become especially troublesome, as targeted responses do not allow for an interdisciplinary response.

To address these shortcomings, businesses should consider new technologies that integrate disconnected processes and applications. Organizations are leveraging advances in data management technology and new API-driven development approaches to connect and automate processes that cross existing system boundaries in a non-disruptive manner. They can continue to take advantage of their existing legacy systems without requiring “rip and replace” by exposing, connecting, and orchestrating services and microservices. Ongoing changes are made as the business dictates – to add new suppliers, incorporate new growth opportunities, and respond to a pandemic or other unforeseen events. The result is a comprehensive and overarching perspective that is enabling frictionless interactions between functional areas and delivering greater flexibility and efficiency, and better insights.

Run the Business on Data and Analytics, not “Gut Feel”



In addition to incorporating reliable and timely data into integrated business processes, industry leaders are looking at advances in analytics and machine learning (ML) technologies to aid in decision making. In some cases, this means incorporating analytics into automated processes to prescriptively drive the business, and other times it means gaining valuable diagnostic and predictive insights for strategic planning. Either way, the business becomes smarter and guided by data, not just gut feel, and evolves from reporting what happened to predicting what is likely to happen and proactively performing intelligent data driven actions based on the analyses.

Supply chain executives want to manage a situation proactively rather than just react to it. The recent pandemic exposed the limitations of existing supply chain processes and made it virtually impossible for many companies to respond appropriately. Brick-and-mortar retailers took an especially hard hit, worsening a blow from the shift to online shopping they had been experiencing for years. As a result, while some retailers were ready to further accelerate their ecommerce capabilities, others were caught unprepared for the velocity of the transition. Regardless of the driver, however, without visibility into key business metrics, decisions will continue to be made based on incomplete and inaccurate data and will continue to result in less than optimal decisions and actions. Executives need to be able to monitor performance, quickly see actual results, and track critical metrics and KPIs in real time so that they can respond effectively.

Demand management is one area of the supply chain where companies have been focusing artificial intelligence (AI) and ML efforts to better predict and model demand. While some organizations focus on aggregated demand, leaders have started to break down planning into more specific levels, from region to store cluster and even down to individual stores and SKUs. More detailed and accurate forecasting processes can yield impactful improvements to overall performance and profitability.

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By leveraging advanced analytics technologies like ML, companies can automate predictable and repeatable situations, taking the burden off of the user. In this way, the smart decision is embedded into the process and the system takes care of exceptions without human intervention, leaving users free to manage more pressing issues. Sometimes these are tactical issues like credit card fraud, and other times, it may involve more complicated routing for logistics providers.

Getting Started

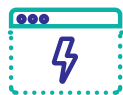


Digital transformation is revolutionizing the extended supply chain and delivering value to consumers, retailers, manufacturers, logistics providers, and brand owners. Companies don't need to throw away their existing technology infrastructure, but rather they can connect their existing systems and data, leveraging and preserving their previous investments in technology. Massive amounts of information can be managed in real-time to help organizations make better decisions, but this can't be done with a person and a spreadsheet. Technology exists that complements existing supply chain infrastructure to connect the gaps, eliminate blind spots, and provide the business with the information that it needs.

Agility and flexibility are more critical than ever, and an overarching architecture that connects data and silos across departments provides the visibility, intelligence, and automation that supply chain executives crave. Better data drives better insights that drive the business forward, and for most companies, that translates into growing revenue, managing margins, becoming more resilient, and keeping their customers happy.

Many experts recommend starting with small incremental steps that deliver meaningful business value. For example, ask what blind spots you have in your business. Or identify a specific business process that can be improved by integration and automation and start there. As Simon Ellis, Program Vice President at IDC notes, "[t]he better visibility you have into something, the better decisions you can make, and digital platforms that combine data with integrated processes and advanced capabilities can truly enable resilience."

InterSystems IRIS Data Platform



InterSystems IRIS is next generation data management software that is used by customers worldwide to augment their existing data and application infrastructure to enable better decision-making; create intelligent, streamlined, end-to-end processes; and deliver accurate real-time visibility for a wide range of mission-critical supply chain initiatives.

Customer examples include:

- A large European grocer is leveraging analytics and machine learning capabilities to identify new opportunities to improve business results. In one example, they are developing clusters of similar performing stores, mapping demand patterns to understand the sources of poor sales in underperforming stores, and subsequently making the appropriate changes to deliver business results consistent with the overachieving stores.
- One of the world's largest shipping companies undertook a major digital transformation initiative to optimize operations. The decentralized organization had developed dozens of legacy solutions over decades, which are being integrated through microservices and APIs. By leveraging integrated, accurate and real-time data, the company now can track the location and status of any of their shipping containers in

seconds, despite the fact that there are over 1 billion container transactions in the network at any time. They are using machine learning to analyze the large sets of integrated data to improve business operations, for example, increasing demand forecasting from two weeks to twelve weeks and have implemented demand-based pricing strategies.

- A third-party logistics provider servicing 48 different geographies with 140 operational subsidiaries implemented a control tower application to integrate data and streamline processes, bringing together more than 250 separate applications. The real-time visibility delivered by the role-based dashboards eliminates blind spots while enabling traceability and agility. In addition, the organization was able to integrate and streamline process flows, reducing the time it takes to onboard a new customer from 6 months to 2 days, improving agility and customer service, and increasing revenue.
- A major consumer packaged goods supplier is leveraging data and machine learning to optimize inventory levels while improving customer service. The company started the project by working to optimize stock levels. By leveraging data from multiple operational systems including order history and demand, and employing machine learning algorithms they developed in house, they were able to refine and update inventory and production data resulting in a substantial reduction in inventory, reduced costs without negatively impacting on-time and in-full delivery (OTIF), and an improvement in customer service scores.

About InterSystems

Established in 1978, InterSystems is the leading provider of data technology for extremely critical data in healthcare, finance, supply chain and other industries. Its cloud-first data platforms solve scalability, interoperability, and speed problems for large organizations around the globe. InterSystems is committed to excellence through its award-winning, 24×7 support for customers and partners in more than 80 countries. Privately held and headquartered in Cambridge, Massachusetts, InterSystems has 25 offices worldwide.

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