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Supply resiliency in action

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Abstract

Supply risk sensing is usually an afterthought, a reactive exercise, and not an important element of the sales and operations planning (S&OP). The 2020 pandemic brought severe supply chain disruptions. Now, the world is experiencing challenging geopolitical tensions, cybersecurity issues, parts and labor shortages, health and safety matters, climate change concerns, an evolving tax and trade landscape, and financial distress events like the pandemic, Russia-Ukraine war, Turkey earthquake, and others, which have made supply disruptions the new norm and supply risk sensing the new requirement across value streams, as countries and organizations fight to maintain operations and continuity of products and services. This article makes a case for strategic and proactive approaches to supply risk management and its drivers, enablers, and challenges when implementing new intelligent sensing programs in large, global organizations.

Deloitte recognizes its clients' ongoing supply chain issues and has developed a digital solution as a way to improve communication and collaboration between the value streams of the supply chain by illuminating its supplier chain to the Nth tier, sensing the various supply risks, and acting to eliminate or mitigate risks before major losses are realized. The potential benefits of these digital capabilities are described in this article, alongside several case studies from actual clients and the future of intelligent supply sensing.

Introduction

By design, supply networks are an interconnected web of suppliers, and isolated events happening in a remote location might have an impact on a local or regional supply chain providing critical components to a higher-degree value stream at a province, country, continent, or global level, all the way to a direct tier-1 supplier. Identifying risks through a supply chain proactively requires N-tier supplier illumination, real-time monitoring of all network nodes, identifying and isolating critical issues, generating accurate insights, and problem-solving for supply assurance.

In a constantly evolving world, affected by countless uncontrollable and ambiguous events, it has never been more imperative to have acute awareness and control of supply chains and supplier networks. Within three short years, global supply chains have been rocked with a pandemic, unprecedented geopolitical unrest, climate change, and mass shortages. Furthermore, certain events (such as the war in Ukraine) have accelerated the awareness and urgency of supply issues for critical commodities in specific geographies. These extreme events have revealed the fragility of supply chains and how these events can create potentially devastating economic disasters for businesses and people throughout the world. Resiliency in supplier networks is now more important than ever.
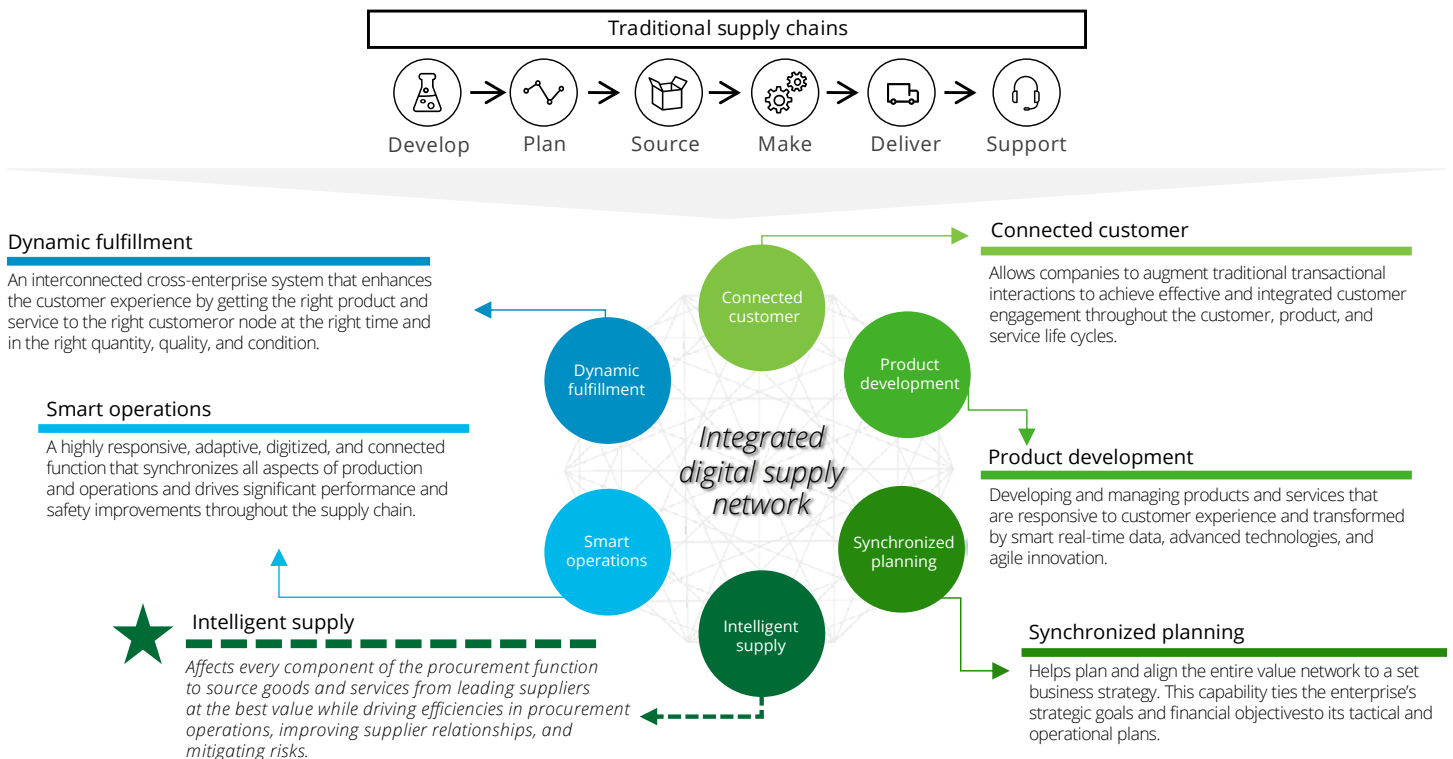
A 2022 Manufacturing Supply Chain Study by Deloitte found that 80% of survey respondents have experienced significant supply chain disruptions in the past 12–18 months, and 90% recognize that the frequency of these disruptions has increased over the past decade—the pandemic having exacerbated the negative impacts. The disruptions that were captured in this manufacturing supply chain analysis study were broad ranging, covering shipping delays, parts shortages, cyber risk failures, among other things. All these issues, and many more, can be prevented and proactively managed with the implementation of Deloitte's supply chain risk sensing tool: Intelligent Supply Sensing (ISS).

From tactical to strategic supply planning

The traditional thinking surrounding supply chains is far from proactive, but rather reactive in nature. Long-term planning is not high priority, and the potential for supply chains' top performance is lost in weeks of dark visibility and uncertainty. The standard approach has been one of Just In Time (JIT), but we now know that this strategy is not conducive to high-performance requirements for supply chains nowadays. Today, it is imperative to reveal supplier network maps of the connected supply chains to illuminate all nodes and proactively sense potential and real risks in goods supply. Traditional, linear supply chains are transforming to dynamic networks allowing for increased visibility, responsiveness, collaboration, and resilience.

Traditional supply chains are also brittle due to siloed approaches within cross-functional supply chain operations in the organization and externally throughout the full supply chain, up and down streams. Positive, collaborative change only comes if absolutely necessary to address extreme situations. Modern supply chains are strategically planning to solve for roadblocks, mitigating risk and fulfilling shortage gaps in advance of occurrences, or shortening resolution lead times. This modern approach allows for organizations to remain flexible and resilient to customers with increased supply network transparency and strategic risk management.

Figure 1. Shift from traditional to integrated, digital supply chains: Intelligent supply positively enables other pillars of the supply chain, and vice versa

Traditional supply chains

Develop → Plan → Source → Make → Deliver → Support

Integrated digital supply network

Dynamic fulfillment

An interconnected cross-enterprise system that enhances the customer experience by getting the right product and service to the right customeror node at the right time and in the right quantity, quality, and condition.

Smart operations

A highly responsive, adaptive, digitized, and connected function that synchronizes all aspects of production and operations and drives significant performance and safety improvements throughout the supply chain.

Intelligent supply

Affects every component of the procurement function to source goods and services from leading suppliers at the best value while driving efficiencies in procurement operations, improving supplier relationships, and mitigating risks.

Connected customer

Allows companies to augment traditional transactional interactions to achieve effective and integrated customer engagement throughout the customer, product, and service life cycles.

Product development

Developing and managing products and services that are responsive to customer experience and transformed by smart real-time data, advanced technologies, and agile innovation.

Synchronized planning

Helps plan and align the entire value network to a set business strategy. This capability ties the enterprise's strategic goals and financial objectivesto its tactical and operational plans.
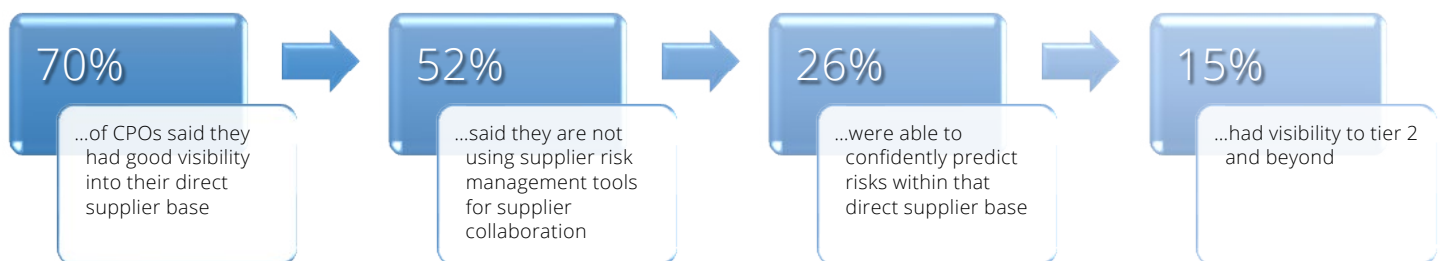
Source: Deloitte - Digital Supply Networks

Enablers to proactive supply risk sensing

Organizations all over the world are looking to become more agile in the face of shifting landscapes, but very few are able to accurately visualize their supplier network, especially past their tier-1 level. In Deloitte's 2021 Chief Procurement Officer (CPO) Survey, half of respondents said they are not using tools for supplier risk management, coupled with low visibility of tier-N suppliers.

Figure 2. Many organizations want to monitor and act in the face of disruptions but are limited by both visibility into their supply base and risk management tools

70%	52%	26%	15%
…of CPOs said they had good visibility into their direct supplier base	…said they are not using supplier risk management tools for supplier collaboration	…were able to confidently predict risks within that direct supplier base	…had visibility to tier 2 and beyond

Source: Deloitte Global 2021 Chief Procurement Officer Survey

The key, well-known enablers of supply chain management are organizational structure, internal behaviors, customer behaviors, top leadership support, information transparency and sharing, and business performance management. In terms of risk management, monitoring performance, sharing real-time information, and collaborating through all levels of the supply chain are crucial for detecting supply risks, sensing their impact on supply disruptions, and innovating on effective and efficient solutions. On the other hand, identifying potential barriers in supply chain management—with tools such as role and process maps, risk and issue logs, cross-functional workshops for assessing issues, and brainstorming solutions—allows organizations to close gaps in supply risk management.

The smart, digital, connected supply risk sensing framework derives its methodology from deep understanding of enablers and barriers to a high-performing supply chain and encompasses the following capabilities. These high-level capabilities, or enhanced enablers to supply risk management, allow organizations to gain the insight desired past tier-1 suppliers, increase collaborations (internally and externally), confidently predict risks to supply chain disruptions, and act accordingly.

Interactive application

• Ability to link to other clients' intranet sites and third-party supplier sites to enrich user experience with insights

• Ability to display personalized dashboards, notifications, workflows by persona

• Integrate workflow management, knowledge management, collaboration, and notification hub seamlessly

Smart insights

• Integrate existing analytical reports from Business Intelligence /reporting tools.

• Ability to build self-guided analysis reports and share with other team members/users securely

• Seamlessly integrate insights from artificial intelligence/machine learning (AI/ML) models

• Ability to create and configure thresholds on demand

Collaboration

• Ability to allow users to ask questions and get answers (supply sensing-related questions) with either a virtual or a live agent

• Allow users to exchange notes and comments

• Train and learn based on user activity and voting

Knowledge management

• Systematically store supplier risk-related mitigation plans, supplier insights, user guides, and other information sources that will become a knowledge base for chatbots

• Organize and build knowledge graphs to assist the retrieval of information

• Allow users and applications search content using AI/ML techniques effortlessly

Workflow management

• Ability to create and manage workflow items based on recommended actions

• Ability to classify similar workflow items and link regardless of case status, using AI/ML

Notification hub

• Central notification hub that will send messages (emails, SMS/text)

• Push notifications and personalized messages to users on their chosen devices

Common challenges through implementation and growth

Deriving from client journeys and direct industry experience, the following themes are usually observed and documented during the implementation and operation of a supply risk management program and rollout of the digital intelligent sensing tool:

- Opting out of illumination features for supply base and only focusing on lower levels of alerts and risk score notifications, as significant multi-tier risk considerations get lost and it becomes a lot more challenging to assess and mitigate risk.

- Similarly, opting out of tracking certain risk domains and sub-domains, which can limit the sensing and decision capabilities of the tool and risk management team.

- Limited open-source supplier and risk data due to the remote nature of certain facilities' locations.

- Failing to validate and complement supplier profile and risk data, which can lead to poor risk assessment and false positives or false negatives.

- The company's architecture and connected technology are in early maturity states, causing issues with execution, performance, scalability and (consequently) adoption.

- Legacy or poorly defined enterprise resource planning (ERP) platform, which makes its integration with risk sensing challenging and, ultimately, achieves poor data quality and connection.

- Ambiguous contracts and statements of work (SOWs), which could result in compromised accountability and inefficient delivery of value.

- In the same vein, lack of understanding and agreement of intellectual property (IP) and who owns it for certain system features (especially for heavily customized platforms) and data flows (created, manipulated, or published).

- Lack of a robust change management, including process improvement and training initiatives.

Businesses, and even entire industries, will continue to be disrupted in many ways by factors like economic upheaval, market evolutions, regulatory demands, technological changes, and more. In response, organizations are developing risk-sensing capabilities in various ways, including the hiring of capable talent and implementing robust processes with effective digital tools. How organizations assess, define road maps, design, pilot, and implement risk-sensing capabilities will largely determine the success and sustainability of the overall program.

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