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2020 has been the year of the supply chain. The impact of poor supply chain visibility and responsiveness has been felt by suppliers, through to manufacturers and retailers. Companies are seeking to ensure agility within uncertainty. Systems that help organizations increase visibility between silos and supply chain partners, and increase the speed of complex decision making, will be critical to supporting day-to-day operations and formulating long-term competitive strategies.

Beyond Disruption: Unleashing the Potential of Intelligent Automation for Supply Chain Visibility and Resilience

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Introduction

Intelligent automation enables companies to operate in a rapidly evolving environment, improving the ability to see and adapt to unforeseen events. At the beginning of 2020, IDC predicted that by the end of 2021, 40% of all manufacturing supply chains will have invested in supply chain resiliency and artificial intelligence (AI), resulting in productivity improvements of 15%. As 2020 continues to be a year of disruption, companies are grappling with survival and recovery and then looking beyond that to reimagining and rebuilding in the next normal.

2020 has highlighted how critical supply chain visibility is for manufacturers, distributors, retailers, and suppliers. As a result, investment has accelerated, with 98% of Asia/Pacific manufacturers currently engaged in efforts to improve visibility in their supply chain according to IDC's Supply Chain Survey, April 2020.

This IDC Executive Insights explores the impact of intelligent automation in supporting supply chain visibility and agility, providing opportunities for resilience and growth in changing operating environments.

AT A GLANCE

KEY STATS

- 98% of Asia/Pacific manufacturers are currently engaged in efforts to improve visibility in their supply chain.
- 73% of Asia/Pacific manufacturers believe the lack of supply chain visibility and flexibility to see necessary changes in time to react to them effectively will be problematic if not addressed.

WHAT'S IMPORTANT

Asia/Pacific supply chains require greater resiliency and adaptability as they face disruptive market environments. Visibility of data across the supply chain will increase the rate of a company's adaptability.

KEY TAKEAWAYS

Data insights have a use-by date, and this is more relevant than ever. Intelligent automation is one way to increase the velocity of data, and ensure decisions are made in-context, allowing for greater operational agility.

Why Are Resiliency and Visibility Important?

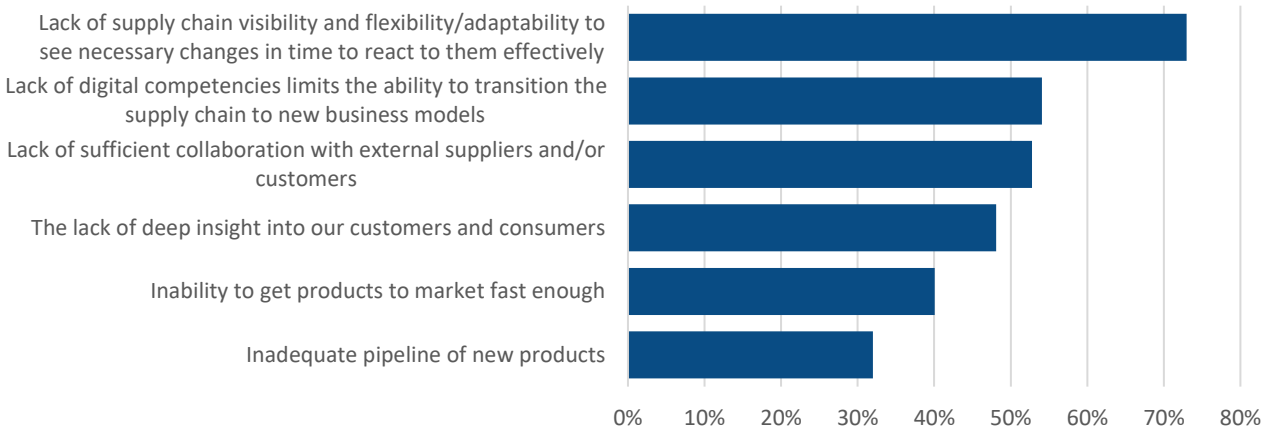
Resiliency is the ability of an organization or process to adapt to changing circumstances while maintaining the central purpose. It is a concept developed through research on how ecological systems respond to change but applies very well to supply chain management. Disrupted supply chains (e.g., transportation bottlenecks or lack of supply) require operational responses that may mean pivoting while maintaining organizational priorities to achieve strategic objectives.

Supply chain visibility is essential to building resiliency. At its core, supply chain visibility provides insight into the flow of goods. In addition to knowing where inventory is at any time (parts or finished products, on-site or in-transit), visibility is about providing insight into the information, financial, and physical flows. For improved resiliency, visibility into all flows is essential within and beyond the organization — a break or hold up in one can lead to disruption in others down the chain.

Visibility adds to the resilience of an organization by providing actionable data that can reduce the impact of disruptions or avoid/reduce customer dissatisfaction with service misses. Figure 1 below illustrates the importance of visibility. 73% of Asia/Pacific manufacturers report it as the most significant gap that will be problematic if not addressed to ensure supply chain continuity. In the same response, flexibility or adaptability is highlighted as similarly necessary, as organizations must respond to the information presented to avert the problem highlighted. Both go hand in hand.

FIGURE 1: ***Gaps That Will be Problematic for Supply Chains in Asia/Pacific If Not Addressed***

Q ***As you think about the future of your supply chain, what current gaps are likely to be the most problematic if not addressed?***



Source: IDC Supply Chain Survey 2020, Asia/Pacific Manufacturing n = 157

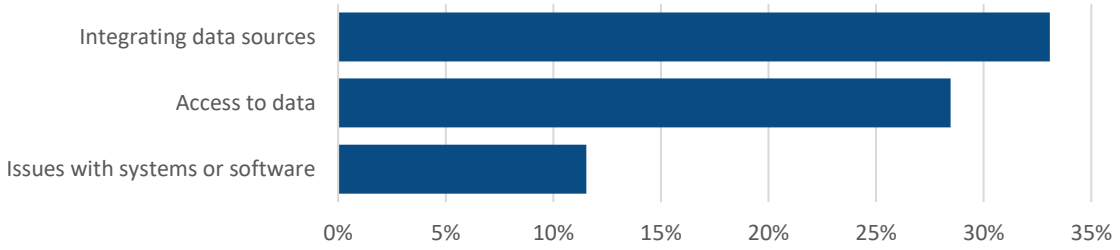
Using Intelligent Automation to Provide Supply Chain Visibility and Agility

What is the Problem with Supply Chain Visibility?

While many companies have aspirations to improve visibility, bringing order, shipment, and inventory status updates into real-time reports or dashboards is difficult. Companies are dealing with the existence of multiple portals, spreadsheets, legacy systems, and siloed systems implementations. As functional boundaries are crossed, trying to integrate financial and resource information to enable shorter reaction times becomes almost impossible. Figure 2 from the IDC Asia/Pacific Industry 4.0 Survey 2020 demonstrates the challenges that organizations have with getting value from their data. Most of this centers around data integration and accessibility, where accessing actionable and useful operational data from IT systems, processes, or operational assets is difficult.

FIGURE 2: ***Challenges in Creating Value from Data for Decision Making***

Q What are the Top 3 greatest challenges for your organization in creating value from data for decision making?



Source: IDC Asia/Pacific Industry 4.0 Survey 2020, Manufacturing n = 130

Data Insights Have a Use-By Date Which Is More Relevant than Ever

Common management decision practices at both strategic and tactical levels involve using historical data in both report generation and more sophisticated data models to guide the decision-making process. In more traditional methods, even pre-COVID-19, organizations were already dealing with the reality that older data driving decisions left them behind competitors. This adds complexity to decisions, especially in unknown circumstances where pre-COVID-19 time-series data offers little insight into the current choices that need to be made. At the moment, planning and decision-making cycles have shrunk. Initially, they were 13-week cycles, then 4–5 week cycles as COVID-19 took hold, and now the requirement is for as near-real-time as companies can manage. This is to ensure data is contextual and drives decisions that will allow for rapid response to take advantage of scenarios that may be time sensitive or have limited capacity.

What is the Role of Intelligent Automation?

Technology, particularly software capabilities that provide visibility and simulation-based insight, plays a vital role in helping companies manage this uncertainty. However, getting from disparate applications to full integration can be a significant leap. As a result, companies can seek interim steps to increase visibility by degrees as they progress through systems maturity and integration, including integrating platforms, applications, and artificial intelligence.

Integration of business data across siloed functions and between partners has historically required significant investment, detailed and lengthy development and customization projects, consulting services, and the possibility of hindering future upgrade paths for systems. Fortunately, new business automation capabilities are available with more consumable tools, suitable for those just beginning their digital transformation (DX) journey, and for more mature DX companies. Organizations can now take advantage of these capabilities and pull data from enterprise resource planning (ERP), Internet of Things (IoT) sensors and edge, and best-of-breed business applications. The features and data from these technologies increase the speed and agility of decisions.

There are three foundational areas in building an intelligent automation capability. While they can be found independently, using them together will allow companies to create value from decision making as they progress through their DX journey. These foundational areas are:

- **Workflow and business process automation.** These automate the coordination of business process workflows, ensuring that actions are carried out by appropriate people or systems. Data is pushed to employees, customers, partners, or suppliers to accomplish activities such as data synchronization, automated alerts based on activity status, and approval processes.

- **Application integration and API management.** The use of application programming interfaces (API) or application integration platforms to provide data connectors between distributed applications, systems, and data sources together across IT environments and ownership silos help make system-to-system and therefore function-to-function or company-to-company connectivity easier, more secure, and more adaptable in the face of change. This connectivity increases the real-time visibility of supply chain activities, providing more data for decision support.
- **Artificial intelligence.** Not all applications of AI are related to intelligent automation. However, AI-driven tools that can recognize and parse different kinds of unstructured data can help the "understanding" of data in context. These tools can adapt to changing screens, workflows, and scenarios. They provide alerts, predictions, or decision recommendations in the flow of work to human actors, increasing agility at critical points in the supply chain and ensuring business continuity. For example, AI can support systems that quickly pull all the relevant data from a previously unseen invoice sent via email. From this invoice, it can identify mismatches between documents in an order flow and notify the appropriate partners through an automated business process.

Conclusion

Companies that can access more data in as near to real time as possible will be able to make higher quality decisions. This is true, especially during the foreseeable future, where old data could reduce decision effectiveness. Intelligent automation capabilities improve supply chain visibility, data coordination, consolidation, and management. IDC believes that companies with the ability to make resilient decisions will fare best. They will grab the opportunity to turn short-term agility into a long-term competitive advantage and drive profitable growth.

About the Analyst

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Stephanie Krishnan is Research Director for IDC Manufacturing Insights, responsible for Industry 4.0 research. Stephanie is responsible for the production, development, and growth of the IDC Manufacturing Insights program in the Asia/Pacific region. In this role, Stephanie is delivering a research agenda that will appeal to technology buyers and vendors both in terms of subscription products and custom research in Industry 4.0 looking across ecosystems, value chains, and supply chains of industrial industries.

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