IDC WHITE PAPER

A MODERN, CONNECTED CLOUD ENVIRONMENT OPTIMIZES SUPPLY CHAIN COLLABORATION — A EUROPEAN PERSPECTIVE

Authors:
Jan Burian, Lorenzo Veronesi,
Maggie Slowik, Simon Ellis

June 2020
Sponsored by DASSAULT SYSTEMES

IDC #EUR146268320

A Modern, Connected Cloud Environment Optimizes Supply Chain Collaboration — A European Perspective

Introduction

The supply chain has traditionally been thought of as a "support" organization that works in the background to ensure that products are planned, made, and fulfilled to customers and consumers.

This is changing. The supply chain is now perceived by manufacturers and retailers as a strategic tool for business performance and growth — and is moving from a cost center to an opportunity center.

This IDC White Paper explores this growing importance and the critical role played by cloud and SaaS applications in enabling the necessary speed and resiliency for the supply chain to meet and exceed expectations and requirements:

- Digital transformation is at the center of an automated, resilient supply chain that can react and adapt to all internal and external threats, with the ability to be resilient to external disruption the key goal. With COVID-19, European companies are discovering that their supply chains lack resiliency. 82% of companies expect supply disruptions to significantly affect their supply chains and, by extension, their business performance.
- The adoption of cloud and SaaS enables a multi-enterprise ecosystem where companies can exchange information and transactions far faster and more flexibly than in traditional point-to-point engagements.
- In IDC's recent 2020 supply chain survey, 82% of global companies are taking part in these multi-enterprise ecosystem networks, with a sizable number of those participating in more than one. European companies are less likely to be engaged with their ecosystem than the global average of 77%.
- The connection to product life-cycle management (PLM) and digital visualization enables secure and effective seamless collaboration among supply chain and ecosystem participants. 67% of global companies say their supply chain and PLM capabilities are tightly integrated, compared with 54% in Europe.

AT A GLANCE

KEY STATS

- 82% of European manufacturers expect supply chain disruptions to significantly affect them.
- For European companies the number 1 change driver in supply chains is use of new technology.
- For 54% of European manufacturers the biggest supply chain gap is collaboration with suppliers.

WHAT'S IMPORTANT

- European manufactures are less resilient then they think they are.
- When it comes to the integration of supply chain and PLM capabilities, European companies need to catch up with their global peers.

KEY TAKEAWAYS

- Work on your supply chain transformation to prepare for tomorrow because leaders are moving quickly.
- Invest in the necessary technologies and use cases to make your supply chain even more transparent, collaborative, and resilient.

- The ability to be resilient and flexible to new business models means being able to quickly ingest large volumes of data and turn it into productive actions either internally or with suppliers and customers. IDC would argue that none of these are possible without the extended ecosystem collaboration that a supply chain network enables and the underlying cloud and SaaS applications and infrastructure to conduct business at the speed of the network.

In This White Paper

This IDC White Paper, sponsored by Dassault, explores the growing importance of the supply chain in supporting new business models for manufacturing companies and the critical role played by cloud and SaaS applications in enabling the necessary speed for the supply chain to meet and exceed expectations and requirements.

This white paper provides a Europe-specific view.

Challenges and Opportunities in the Supply Chain

The supply chain continues to undergo almost unparalleled levels of change. The older measures — productivity, quality, forecast accuracy, and service — still apply of course, but we now see cloud and digital supply chain transformation about to change everything. In the various surveys IDC has fielded since 2018, four broad observations have come to the fore:

- After years of being relegated to support status, the supply chain is now perceived by manufacturers and retailers as a strategic tool for business performance and growth — from a cost center to an opportunity center.
- Digital technology is a significant driver of change in the supply chain, reflecting both the potential for driving transformation and the lack of full clarity into true potential.
- Cloud and SaaS applications are rapidly becoming the default choice for supply chain organizations. In IDC's 2020 survey, 61% of European respondents believe these are important or very important to how they run their supply chain today. Three years on, that perspective increases to 66%.
- More broadly, the use of new technology is identified by both global and European companies as the top driver of change in their supply chains (see Figure 1).

Supply Chain Resiliency

Over the past decade, supply chains have transformed into globalized operations, in part to leverage low-cost labor arbitrage opportunities, but also to meet the growing demand for products in those same emerging regions.

While globalized operations can mean diversification of risk, it also exposes companies' supply chains to the impacts of regional problems, particularly where those operations play a significant role globally.

We saw that back in 2011, when flooding in Thailand significantly impacted high-tech electronics manufacturers that could not get the hard-drive components they needed for their products.

Some companies diversified supply to reduce the impact of another similar disruption in future, but many did not and they remain vulnerable.

In addition, the move to aggressively implement lean manufacturing techniques across multiple industries means that manufacturers' inventories are often low, and many parts are managed "just in time." You cannot build an automobile with 98% of the necessary parts; you need 100%. At IDC, we have argued that, if not implemented properly, lean principles can result in some brittleness in the supply chain and a reduced ability to respond to unexpected disruptions.

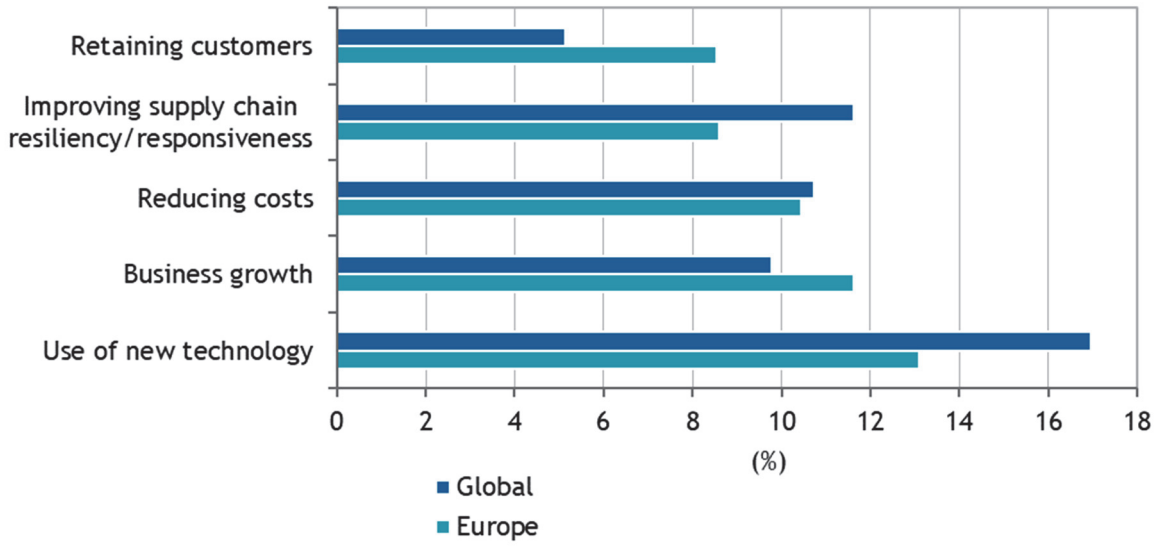
Understanding the multidimensional nature of risk and creating a resilient supply chain is a worthwhile endeavor, particularly in a world where disruptions are likely to occur more frequently and with greater severity. IDC defines resiliency as the ability of a supply chain to ensure and preserve the continuity and consistency of product supply and meet business obligations for product delivery and service to customers in the face of both short-term operational and longer-term strategic disruptions.

Resiliency is also about the ability to quickly adapt to changing business conditions while maintaining the core purpose and principles of the business. For a manufacturing company whose first principle is to be the low-cost provider in its market segment, for example, responding to business disruptions by increasing structural costs over an extended period would not be representative of a business that had high levels of resiliency. Likewise, a resilient business whose first principle was service would be able to adapt to disruptions without a significant impact on service levels.

Cloud and SaaS applications enable resiliency by providing the necessary supply chain visibility (both internal to your supply chain and external to the market) to enable companies to assess risk and risk conditions and take the necessary steps — proactively, reactively, or with a mix of both. There is a compelling argument that the ability to see something ahead of your competition, and to act on it more quickly, is at the core of resiliency competitive advantage. It is hard to do this without modern visibility tools.

Resiliency is among the top 5 priorities for European companies, as shown in Figure 1.

FIGURE 1
Global and European Resiliency Efforts



Q. Which of the following are the most important areas driving change in your supply chain?
Source: *IDC Supply Chain Survey, 2020*; global n = 816, Europe n = 356

Digital transformation is at the center of an automated, resilient supply chain that can react and adapt to all internal and external threats, with the ability to be resilient to external disruption. COVID-19 has made many European companies realize that their supply chains lack resiliency, and 82% of them expect supply disruptions to significantly affect their supply chains and, by extension, their business performance. Clearly, COVID-19 is a 2020 (and perhaps 2021) problem, but inevitably there will be other problems in future. In the same survey, when asked about the future of their supply chains and the gaps that are likely to be most problematic if not addressed, lack of supply chain visibility and resiliency to see the necessary changes in time to react to them effectively was cited as the top challenge globally (21% of companies) and in Europe (18%). A further 19% of European manufacturers cited the inability to get products to market fast enough as another significant gap.

Conversations that IDC has had with these manufacturers suggest that they view cloud and SaaS applications as inherently "more nimble and flexible" than their on-premises predecessors. Cloud is simply better suited to the resilient supply chain that they require.

Supply Chain Multi-Enterprise Ecosystems

The adoption of cloud and SaaS enables a multi-enterprise ecosystem where companies can exchange information and transactions far faster and more flexibly than in traditional point-to-point engagements. It has long been IDC's view that multi-enterprise networks will be central to the future of the supply chain and that the best-in-class supply chain of the future will need to be highly collaborative from the initial stages of product design through to post-sale service. The reality is that supply chains rely on suppliers and enablers more today than at any time in the past, and the definition of "core competency" continues to narrow. What manufacturers consider core competency today is much less broad than even five years ago. Although we may call them

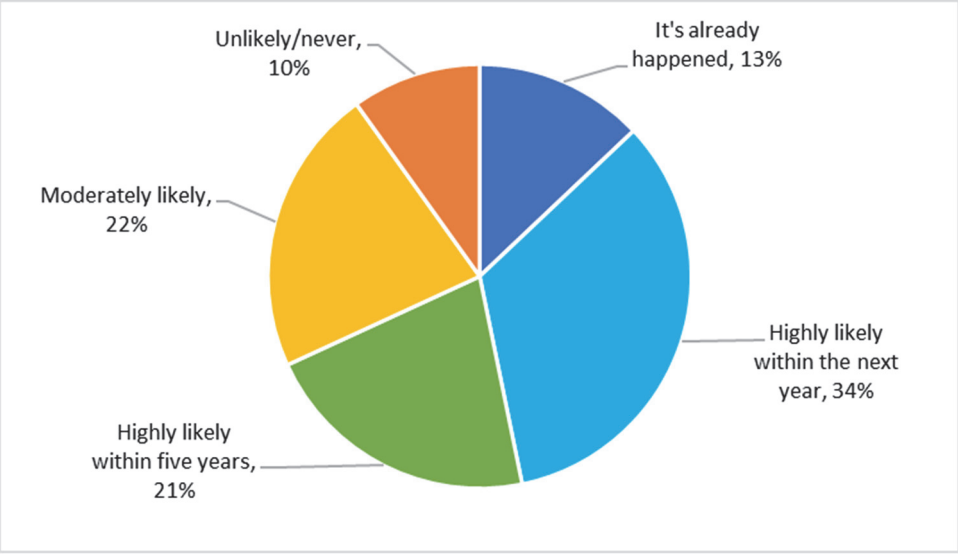
manufacturers, many companies in the manufacturing industry are now little more than a brand engine with all of the traditional manufacturing operations done through partners. It becomes quite clear that the ability to navigate efficiently and effectively through a partner network is critical to supply chain and broader business performance.

In IDC's recent 2020 supply chain survey, 82% of global companies said they participate in these multi-enterprise ecosystem networks, with a sizable number of those taking part in more than one. European companies are less likely to be engaged with their ecosystem than the global average of 77%. Multi-enterprise ecosystems are simply not possible without the cloud-based networks that enable connectivity and collaboration among partners. These networks also enable n-tier visibility in ways that were not previously possible.

Supply Chain–Enabled New Business Models

When asked about their challenges, most manufacturers talk about the threats from changing or emerging new business models, many of these only possible with modern, digital supply chain capabilities. IDC's 2020 supply chain data suggests that 54% of companies expect their business to be disrupted by emerging digitally native businesses with agile and resilient supply chain capabilities. European companies view their business as slightly less vulnerable, at 47% (see Figure 2), but it is still perceived to be a significant problem.

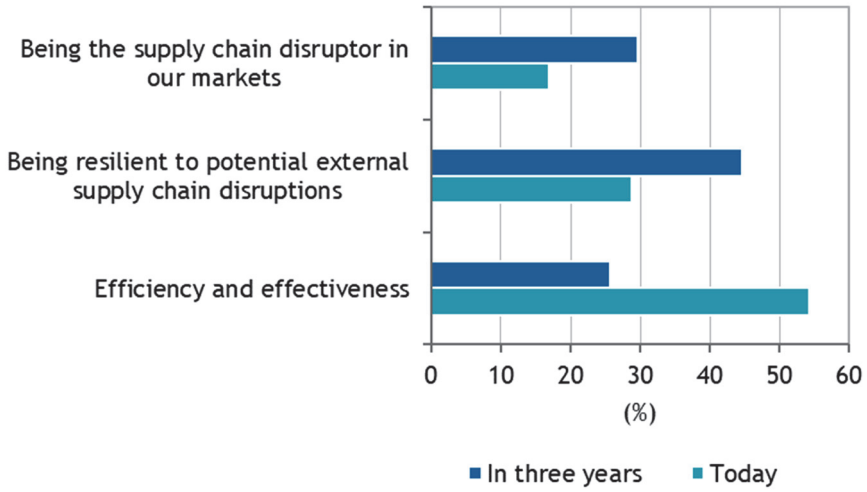
FIGURE 2
Business Disruption in Europe



Q. How likely is it that a digitally native (business model based on supply chain digital competencies) competitor could emerge in your industry and gain a competitive advantage?
Source: *IDC Supply Chain Survey, 2020*; Europe n = 356

Given the expectations for competitive disruption, the goal for future supply chain transformation must be the ability to be both resilient to external disruption and be able to seize on new business models as a disruptor as opportunities arise. Figure 3 highlights the views of global companies, both today and in three years. European companies are slightly more likely to view efficiency as important in three years, but we see an even bigger priority shift toward becoming resilient to external supply chain disruptions in the region.

FIGURE 3
Transformation Goals Globally



Q. What would you view as the strategic priority for digital transformation of the supply chain at your company, both today and in the future?
Source: *IDC Supply Chain Survey, 2020*; Europe n = 356

The ability to adapt to or adopt new business models, globally and in Europe, is critical for manufacturers. These models will vary by industry or even by company. In consumer-facing industries, for example, the ability to customize at scale is a key supply chain capability if companies are to support consumer demand for personalization (of both product and the shopping/delivery experience). The ability to scale is key for European companies, and the supply chain's ability to manage high-volume data sources and quickly turn them into decisions must be an enabler and not a drag on innovation. With the inherent low latency of cloud applications, on-premises tools are likely to be outdated and cumbersome. To that end, European companies also show a strong appetite for 5G (60%), which will enable greater connectivity and help them to get the most out of digital technology deployments.

IT and Integration Concerns

In terms of IT concerns, there are a number of issues for organizations, particularly around managing mixed infrastructure and the balance between integration and functionality:

- **Managing mixed IT infrastructure.** Cloud adoption is growing, but on-premises applications are still widely used, so companies will have to manage both for the foreseeable future. This is particularly true for companies in mature regions such as North America and Europe where multiple generations of on-premises applications exist and persist. In emerging regions, particularly in some Asia/Pacific countries, on-premises supply chain applications were never implemented so legacy infrastructure is much less of an issue.
- **Frequency of updates.** The other challenge for companies, both IT and supply chain, is how best to manage the frequency of updates to their cloud and SaaS environments. If the significant benefit to cloud is its ability to quickly adapt to changing business conditions with regular functionality updates, the flip side is in the requirements for

companies to quickly assess the impact of those changes on their other systems and business processes. This is an emerging capability, but for now many companies are struggling with accepting or rejecting version changes in their cloud applications.

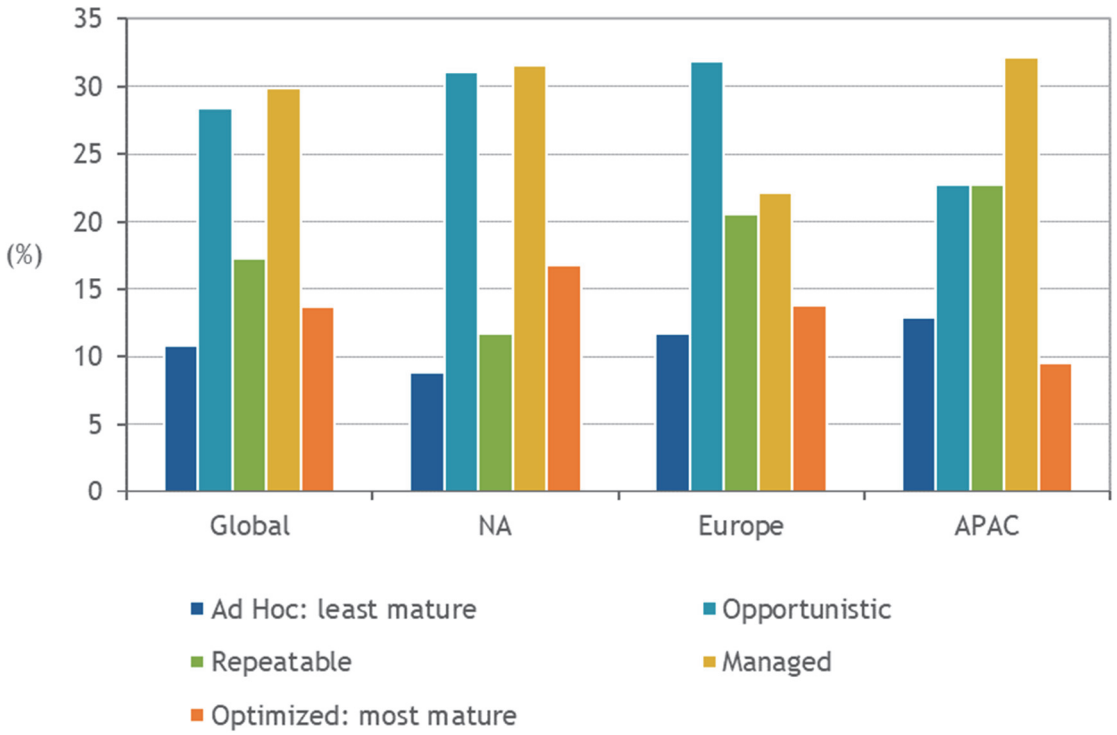
- **Integration versus functionality.** Cloud typically requires a level of standardization that traditional on-premises applications did not have. There are advantages and disadvantages to a standardized versus a customized approach. Though most companies have concluded that the integration and speed advantages of cloud offset the necessity of accepting a more standard set of capabilities, there will always be exceptions where a more customized, fit-to-suit on-prem tool is preferred. In the main, however, companies are finding that cloud applications have the essential functionality and any missing capability is either less important than the benefits of easier integration or can be found in third-party bolt-on micro apps.

Evolving from a Supply "Chain" to a Collaborative Supply "Ecosystem"

The supply chain's ability to support business requirements from initial product design through to post-sale support requires a number of capabilities, including speed, nimbleness, and resiliency. These capabilities don't just happen, and many established supply chains are finding themselves poorly positioned to compete in a fast, highly disruptive environment.

FIGURE 4

Supply Chain Transformation by Region



Q. Which of the following statements best describes the state of digital transformation in your supply chain?
Source: *IDC Supply Chain Survey, 2020*; n = 816

Broader efforts to digitally transform the supply chain are underway, but as noted in Figure 4, they are not progressing quite as quickly as we might wish. European companies have made good progress in the most mature phase of adoption (optimized), but this progress is isolated as there is a significant number of companies in the two least mature phases (ad hoc and opportunistic) as well.

IDC believes that companies that lag behind in their supply chain transformation efforts are more likely to experience business model disruption from both existing competitors and digital-native new market entrants.

IDC defines a multi-enterprise supply chain commerce network as any platform that facilitates the exchange of information and/or transactions among disparate parties pertaining to the supply chain or to supply chain processes. In today's fast-paced, highly analytical supply chain, the use of networks to facilitate commerce and collaboration can be the difference between meeting and missing supply chain performance goals. The ultimate goal of these ecosystem networks is to support the seamless many-to-many interactions that run throughout a supply chain. Ecosystem networks enable manufacturers, partners, suppliers, and customers to communicate, collaborate, transact, and optimize their interactions and operations. Manufacturers are on a path to reach this goal, but as with all transformations, much work still needs to be done.

Table 1 summarizes ecosystem network adoption by region.

TABLE 1
Ecosystem Adoption by Region

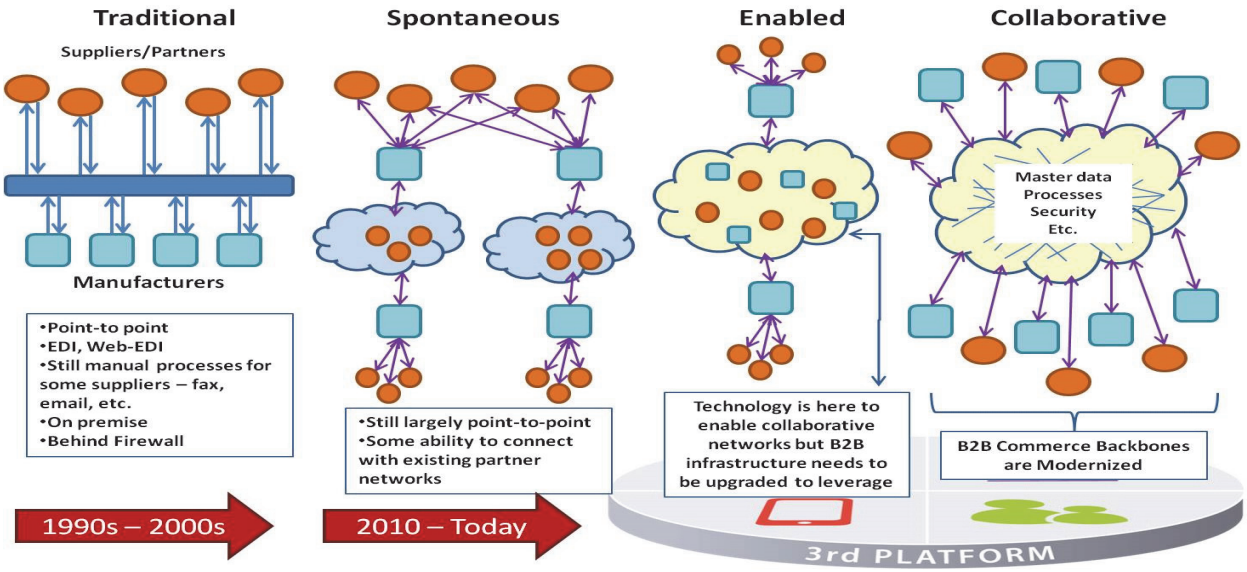
	Global	North America	Europe	APAC
Yes, we currently participate in at least one B2B commerce network	81.2%	85.0%	77.3%	78.2%
No, we do not currently participate in any B2B commerce networks	18.8%	15.0%	22.7%	21.8%

Q. Please indicate whether you currently participate in B2B commerce networks (online, cloud-based trading hubs or marketplaces for B2B transactions).
Source: *IDC Supply Chain Survey, 2020*; n = 816

Figure 5 highlights the phases through which ecosystem networks have passed over the past 15 years. It shows how participants have interacted and visualizes how modern digital technologies have laid the groundwork for the emergence of collaborative commerce networks.

FIGURE 5

Ecosystem Network Progression



Source: IDC, 2020

Cloud Provides the Platform for Ecosystem Networks

Cloud provides the necessary platform for collaborative commerce, as it moves beyond the firewall and creates a platform for many-to-many interactions among manufacturers, partners, suppliers, and customers. While most manufacturers have dipped their toe into cloud computing in the supply chain with private clouds, replacing the VANs of the past, the hybrid and public cloud infrastructure lays the groundwork for collaborative commerce networks. The cloud provides many benefits, including reduced cost, greater scalability and elasticity, and increased agility. Additionally, cloud services have evolved to address many of the security and reliability concerns voiced by manufacturers.

Ecosystem networks offer manufacturers a practical application for large volumes of data within their supply chain operations. As we like to say at IDC, these commerce networks essentially become "dig sites" for the vast array of manufacturing data that passes through them each day. In early phases of commerce networks, this data was locked away in silos that existed behind the firewall, and EDI was the main conduit to send information back and forth between trading partners. With the rise of Big Data technologies for capturing and mixing all forms of data together and more importantly analytic tools for "mining" that data, the value of the commerce network becomes exponentially greater than the one-to-one data sharing that occurred with traditional EDI. Essentially, Big Data benefits from the "network effect" of commerce networks. Suddenly, manufacturers have insight into a range of data and information that can be aggregated and analyzed as never before, and manufacturers can make informed business decisions based on that information.

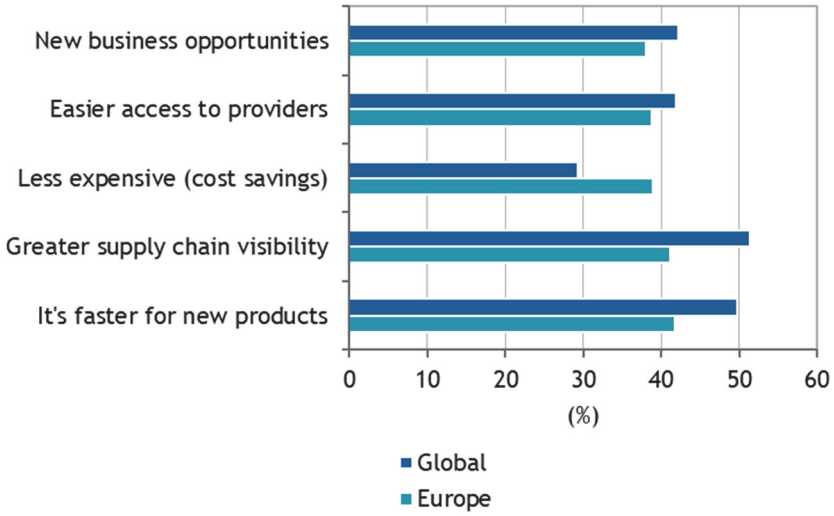
Extending Ecosystem Networks

At IDC, we are also seeing the extension of ecosystem networks beyond traditional supply chain boundaries. We noted earlier the importance of viewing the supply chain from initial product design to post-sale service. As we extend the notion of supply chain back to design and forward to post-sale support, the linkage between service systems and PLM becomes critical — design for "mass" personalization, for example, and how the supply chain must be able to support these initiatives by seamless connections to suppliers and customers. In Europe, IDC sees ecosystems being formed among manufacturers, engineering companies, software vendors, end users, and machine builders to help shorten time to market, reduce development costs, and improve customer experience. In these scenarios, PLM acts as a collaboration platform enabling all parties involved to both incubate and commercialize new ideas.

The connection to PLM and digital visualization enables seamless collaboration among supply chain and ecosystem participants in a secure and effective way. This collaboration is essential to prevent issues and complications during the supply chain execution and post-sale service phases. 67% of global companies say their supply chain and PLM capabilities are tightly integrated; European companies are slightly lower at 54%.

Extending ecosystem networks brings substantial benefits to the participating companies, as illustrated in Figure 6. For European companies, increased time to market is the most cited benefit, closely followed by greater supply chain visibility. Visibility aligns well with our earlier discussion about supply chain resiliency, and the need for more robust new product capabilities is a key opportunity for most businesses.

FIGURE 6
Benefits of Ecosystem Networks



Q. What have been the benefits of participation in a B2B commerce network?
Source: *IDC Supply Chain Survey, 2020*; global n = 816, Europe n = 356

Benefits of Cloud, SaaS, and Ecosystem Networks

In this paper, we have argued that the modern supply chain must be fast and resilient, and be able to easily adapt to and adopt new business models that the broader business requires to remain competitive and achieve necessary performance — and it must do this both as an initiating disruptor or in reaction to an external disruption. Being resilient and flexible to new business models means being able to quickly ingest large volumes of data and turn them into productive actions either internally or with suppliers and customers. At IDC, we would argue that none of these are possible without the extended ecosystem collaboration that a supply chain network enables and the underlying cloud and SaaS applications and infrastructure to conduct business at the speed of the network.

Companies operating in traditional collaboration models, with multiple generations of legacy, on-premises technology are not going to the able to adequately adapt to changes, either internal or external, and they are not going to be able to efficiently or effectively take advantage of opportunities upstream and downstream. Their systems and forms of collaboration will simply be too slow, and they will be beaten to the markets by more nimble competitors. It is worth reiterating a point made earlier about business model disruption. In the IDC 2020 supply chain survey, a large percentage of companies felt that their business was ripe for disruption (see Table 2 by region).

TABLE 2
Business Disruption

	Global	North America	Europe	APAC
It's already happened	16.9%	17.5%	12.9%	18.3%
Highly likely within the year	36.6%	35.7%	33.6%	39.3%
Highly likely within five years	19.3%	18.7%	21.2%	19.1%
Moderately likely	20.9%	20.1%	21.8%	21.6%
Unlikely/never	6.3%	7.9%	10.4%	1.7%

Q. How likely is it that a digitally native (business model based on supply chain digital competencies) competitor could emerge in your industry and gain a competitive advantage?
Source: *IDC Supply Chain Survey, 2020*; n = 816

Without major improvements in how companies run their supply chains, business model disruption will have a significant impact on future business success. 47% of European companies believe disruption will come from a new market entrant within 12 months, increasing to 68% within five years. This doesn't even take into account the current levels of disruption in the supply chain from COVID-19, or the next supply and demand shock (as there will be others).

The 2020 supply chain survey also offers some insight into the benefits of cloud and SaaS applications as enablers of ecosystems. Table 3 shows the level of current and short-term future adoption of cloud and SaaS applications. The majority of global companies expect the adoption

of cloud and SaaS applications across the supply chain to be above 90% within the next 12 months.

TABLE 3
Global Supply Chain Cloud and SaaS Adoption

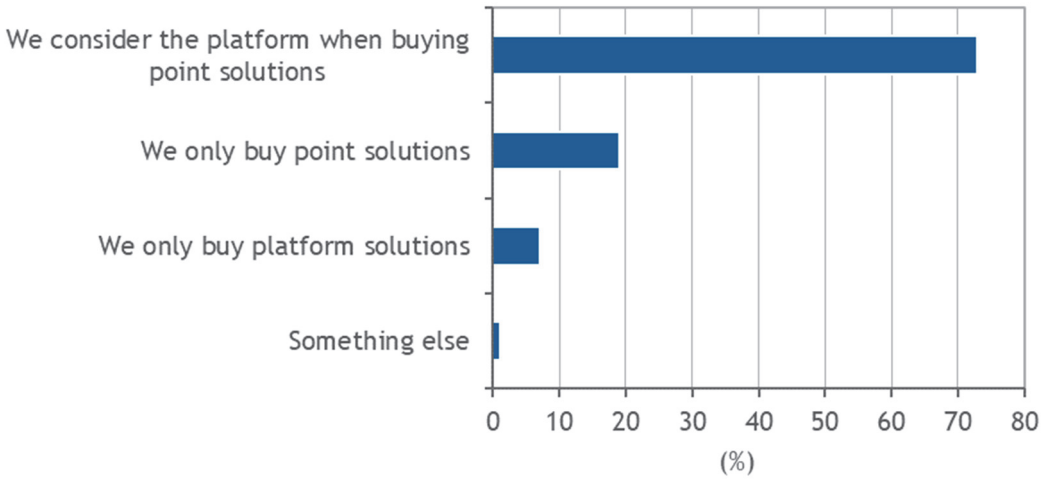
	Cloud/SaaS Already	Cloud/SaaS Within 12 Months	No Plans
Demand planning	47%	45%	8%
Supply planning	54%	37%	9%
S&OP	43%	43%	14%
Warehouse management	54%	37%	9%
Transportation management	53%	38%	9%

Q. Please indicate your plans for deploying each of the following elements of your organization's supply chain via a cloud application (multiple questions).
Source: *IDC Supply Chain Survey, 2020*; Europe n = 356

European companies are slightly less advanced in their adoption of cloud/SaaS compared with their global counterparts, with the exception of S&OP (sales and operational planning). However, Europe has higher adoption plans across the board than their global peers. As we noted earlier, cloud/SaaS applications are rapidly becoming the default for supply chain organizations, with almost 61% of European respondents believing that these are important or very important to how they run their supply chain today. Three years on, that increases to 66%. It seems quite clear that cloud/SaaS are the future for the supply chain.

It's also important to recognize the importance of the ecosystem and the supply chain platform that helps to enable the ecosystem. We have already outlined the benefits of ecosystems, so there is no need to repeat them here, but in a survey conducted in late 2019, the ability for the supply chain platform to enable industry ecosystems clearly favors cloud-based supply chain platforms (see Figure 7).

FIGURE 7
Investment in Platforms



Q. What is your organization's approach to selecting technology or applications for your supply chain?
Source: *IDC Digitally Enabled Thinking Supply Chain Survey, 2019*; n = 150

This does not mean that supply chains have stopped investing in point solutions where necessary, but the shift to platforms is quite clear and compelling.

Essential Guidance/Actions to Consider

We introduced this paper by observing that the view of the supply chain is changing and that it is now perceived by manufacturers and retailers as a strategic tool for business performance and growth and is moving from a cost center to an opportunity center. We have also explored the growing importance of cloud and SaaS applications in enabling the necessary speed and resiliency for companies to compete in the current marketplace and leverage the many ecosystem opportunities presented to them. There's every reason to believe that the pace of supply chain change will accelerate and that the supply chain of the future will be in a constant state of flux. Companies that can build supply chain flexibility and resiliency quickly will be better positioned to support their consumers/customers and therefore grow their businesses more effectively. The reality is that even today's leaders, if they do nothing to enhance their supply chains, will not be leaders in the future.

IDC offers the following guidance:

- Assess your supply chain application maturity and determine whether moving to the cloud/SaaS will enable the speed and resiliency that may currently be missing.
- Consider participating, or increasing participation, in marketplace relevant ecosystems for your business.
- Prepare today because though supply chain transformation remains behind the average in terms of maturity, leaders are moving quickly as they believe there to be an early mover advantage. The reality is that transformation is happening now, and there are many use cases that can be adopted now. The key is for companies to prepare today.

- Assess how likely it is that your business will be disrupted, either by natural causes such as COVID-19 or by digitally enabled competitors that can accomplish things with their supply chains that you cannot.
- Improve your collaboration with suppliers and partners. While you may see more opportunity in collaborating upstream, you equally need to improve your collaboration with suppliers and partners to achieve more balanced relationships and ultimately strengthen trust throughout the value chain.
- Use PLM as a data sharing and communication platform across the value chain to increase speed of collaboration, ideation, quality, and stakeholder ecosystem orchestration. Typical stakeholders include OEMs, engineering companies, software vendors, end users, and machine builders.

There's little doubt that supply chains must transform or be disrupted by competitors that are more advanced in their digital transformation. Supply chain transformation is a story of both opportunity and challenge — an opportunity for those companies well on the way in their transformation journey, but a challenge for those that have not yet started.

About the Analysts

Jan Burian, Research Director, IDC Manufacturing Insights EMEA

Jan Burian is research director for IDC Manufacturing Insights EMEA. His focus is on smart manufacturing, Industry 4.0, and business collaboration ecosystems.

Lorenzo Veronesi, Research Manager, IDC Manufacturing Insights EMEA

Lorenzo Veronesi is research manager for IDC Manufacturing Insights EMEA. His focus is on smart manufacturing, Industry 4.0, smart mobility, and product life-cycle management.

Maggie Slowik, Research Manager, IDC Manufacturing Insights EMEA

Maggie Slowik is a research manager for IDC Manufacturing Insights EMEA. She leads the European Manufacturing Digital Transformation Strategies program.

Simon Ellis, Program Vice President, IDC Manufacturing Insights

Simon Ellis leads the Supply Chain Strategies practices at IDC Manufacturing Insights, one of IDC's industry research companies that addresses the current market gap by providing fact-based research and analysis on best practices and the use of information technology to assist clients in improving their capabilities in critical process areas.

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IDC UK

5th Floor, Ealing Cross,
85 Uxbridge Road
London
W5 5TH, United Kingdom
44.208.987.7100
Twitter: @IDC
idc-community.com
www.idc.com

Global Headquarters

5 Speen Street Framingham, MA
01701 USA
P.508.872.8200
F.508.935.4015
www.idc.com

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