

Industry Brief

Supply Chain Execution Delivers the Digital Supply Chain

Sponsored by: SAP

Simon Ellis
June 2019

SITUATION OVERVIEW

The supply chain, whether you are a manufacturer, retailer, wholesaler, or something else, is now a critical function for companies to realize their business aspirations. It is a competitive weapon in the modern digital economy. Advanced supply chain capabilities can enable more efficient and effective business approaches and support new business models that translate directly to business performance that is tangible and measurable. More importantly, these capabilities transition the supply chain from one that is a "cost center" to one that is an "opportunity center."

It is not enough, however, to simply leverage the traditional elements of supply chain planning and execution – that is too limiting. Having an intelligent supply chain that functionally integrates and connects the design process through to the postsales process should be the goal of all supply chains. While aspirational in the past, modern technologies and integration approaches make this a reality today. At its core, an intelligent digital supply chain is a single, integrated entity that encompasses the key data, analytics, and business processes involved in designing products through to servicing the consumer post sale. The five critical business areas – design, plan, manufacture, deliver, and operate – are not conceptually new, but they must engage and be connected in new ways.

The role of deliver, or supply chain execution, is ultimately the connection with the customer or, with direct fulfillment, the consumer. If you fail to deliver on your "promise," then nothing else done right upstream in the supply chain counts. In the eyes of the customer/consumer, you have failed to create a superior customer experience. Supply chain execution has tended, historically, to be a high-touch, intellectually intense activity within the supply chain, yet it is often fragmented. In this sense, it is critical to the success of a connected, intelligent supply chain. At IDC, it is our view that the only way to do modern fulfillment right is to ensure that supply chain execution is a fully integrated part of an intelligent digital supply chain. The notion of integrated supply chain execution is not necessarily new, but it is now a practical reality for many companies. Companies have the opportunity of progressing beyond simple modernization and to consider what "integrated" means in the context of supply chain execution and fulfillment, and how it should be approached. Given the continuing pressure on companies to drive productivity growth without increasing head count, the aspiration for integrated supply chain execution is principally about the use of modern, aligned technology to drive actionable insights from available data to facilitate better decision making for clear business benefit.

Key takeaways from this Industry Brief include:

- Customer centricity means delivery excellence, which is a requirement for the intelligent supply chain.
- Supply chain execution must be both integrated and connected – warehouse, transportation, and track and trace – across the full logistics network.
- As the pace of business change accelerates, digital business execution drives differentiating value.
- There is an opportunity for a step change in supply chain execution performance.

CHALLENGES AND OPPORTUNITIES IN SUPPLY CHAIN EXECUTION

One of the consequences of increasing customer centricity, and the need to be both nimble and flexible, is that the traditional large, regional distribution center (DC) may have seen its peak. While we do believe there is a role for the million-square-foot facility in some circumstances, we are expecting that manufacturers will begin to explore smaller, local warehouses that will make up a "micro-logistics network" or invest in robotics technology that can dramatically reduce the cost of piece picking. This will not be a trivial undertaking, and it may be implemented in various ways, including partnering with a large logistics services provider or warehousing on demand, but it seems to be an inevitable result of accelerated delivery, particularly if "direct to consumer" grows as a practical channel. But it also means that fulfillment facilities must be better integrated into the broader supply chain with the need for denser logistical networks and improved speed by using interconnectivity across virtual logistics platforms. At IDC, it is our view that the only way to do modern fulfillment right is to ensure that supply chain execution is a fully integrated part of an intelligent digital supply chain.

As organizations consider the realignment of the supply chain execution network to one characterized by multiple regional fulfillment centers (micro-logistics networks) or invest in modern service robotics, the business impact will be significant in the following ways:

- Improved execution speed and accuracy
- Balance of scale and direct fulfillment models
- Less vulnerable to labor limitations and scaling
- Benefit from an agile, modern, digital execution suite connected to both planning and manufacturing

The short-term challenge implicit here is the need for a fulfillment capability that is designed for and capable of growing both consumer/customer personalization needs the legacy mass market. According to *Supply Chain Survey* fielded by IDC in mid-2018, the primary goal for supply chain transformation was to meet customer needs. Over 60% of respondents indicated this goal to be their top priority; not surprising perhaps, but why wasn't it 100%? While personalization is clearly the way of the future, there is a huge mass market business that will persist at material scale for the foreseeable future. While the exact supply chain mechanisms for servicing these different customer needs are, as yet, unclear, what is clear is that an integrated and connected fulfillment capability must be part of that answer.

For supply chain execution, an intelligent digital supply chain is a bit more intuitively obvious, using technologies like mobile, robotics, 3D printing, and cloud to better understand and balance inventory, delivery obligations, and smart postponement to better align to customer and consumer needs. Indeed, persistent gaps in fulfillment capabilities are likely to become a significant drag on the growth and

profitability aspirations of any business. In IDC's *Supply Chain Survey*, respondents were asked that when they think about the future of the supply chain, what current gaps are likely to be the most problematic if not addressed. Figure 1 summarizes those responses.

All the top responses are either directly or indirectly related to the ability to manage fulfillment and deliver on the promise to consumers or customers. The lack of connected and integrated supply chain execution will, we believe, distinguish well-performing supply chains from poorly performing supply chains.

FIGURE 1

Key Supply Chain Areas for Improvement: Today and in Three Years



n = 300

Source: IDC's *Supply Chain Survey*, 2018

The profound importance of consumer/customer centricity notwithstanding, supply chain execution must also serve a second master. Cost optimization and waste elimination are also critical in the intelligent supply chain. Whether one makes extraordinary efforts to meet the delivery promise depends, to a degree, on understanding trade-offs and opportunity costs in real time. As we think about supply chain transformation, particularly for the supply chain execution functional areas, it becomes a balancing act between managing for efficiency and effectiveness and enabling disruptive capabilities. IDC's *Supply Chain Survey* was quite instructive in this regard as illustrated in Table 1. In the short term, responses favored efficiency over resiliency, but in the longer term, resiliency trumped efficiency. The reality is that the intelligent supply chain must have both.

The challenge will be to manage efficiency and effectiveness goals in the shorter term while making sure that the organization is building the necessary capabilities for resiliency in the longer term. It's not possible to know the future exactly, so some "bets" must be taken. In the view of IDC, moving to a connected and integrated intelligent supply chain is one well taken.

TABLE 1

Strategic Priority for Supply Chain Transformation: Today and in Three Years (%)

	Today	In Three Years
Efficiency/effectiveness	60	19
Resilient to disruption	22	47
Be the disruptor	18	34

n = 300

Source: IDC's *Supply Chain Survey*, 2018

SUPPLY CHAIN EXECUTION MAKES THE EXTENDED ECOSYSTEM WORK

The central mission for fulfillment is to ensure that the supply chain delivers on the key promise – for both products and services. Supply chain execution is the "glue" that holds the digital supply chain together – fail in the final step and the entire supply chain fails. Indeed, if the supply chain fails to deliver on this "promise," then nothing else done right upstream counts. In the eyes of the customer/consumer, you have failed. This means understanding constraints and implications both upstream and downstream and having an end-to-end connected logistics process that includes warehousing, inventory insight, transportation, and visibility (track and trace). Increasingly, this means that supply chain execution across a cloud-based logistics network enables visibility both upstream and downstream.

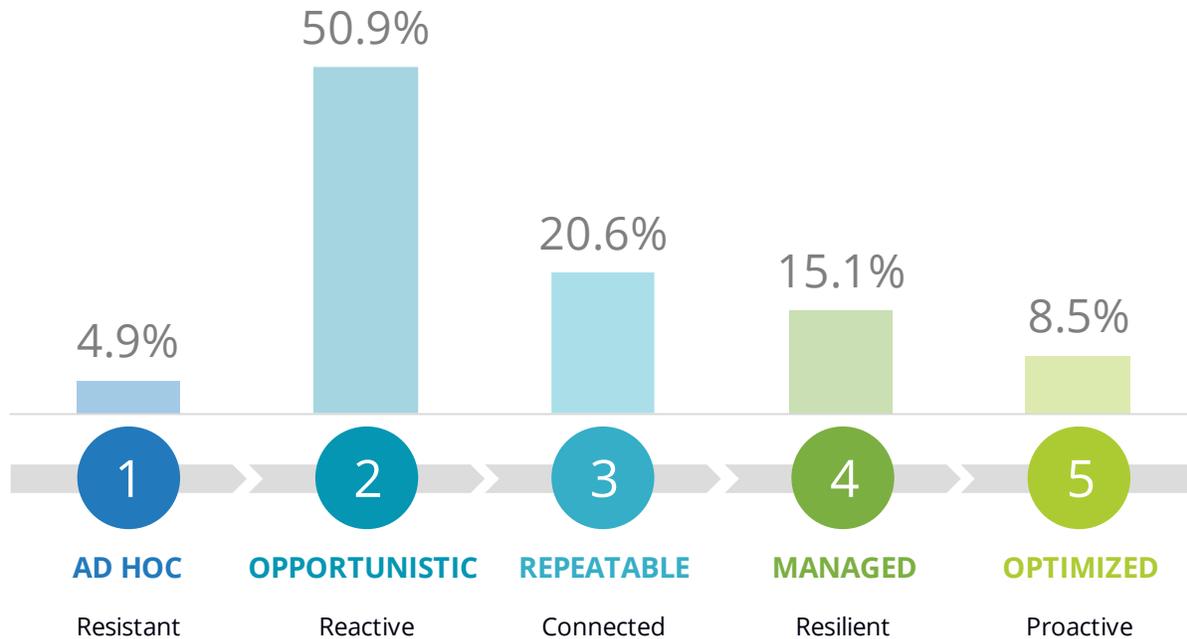
Understanding constraints both upstream and downstream means full visibility into manufacturing and supply chain planning activities to ensure that inventory levels are balanced with orders and forecasts and that the timing of replenishment shipments from factories or contract manufacturers are tracked in real time and connected to pending customer shipments. Being connected to the supply chain design process ensures that new products or services are "designed for fulfillment," mostly, but not exclusively, a function of primary and secondary packaging. Last, understanding product or asset performance with integration to postsales operation means that reverse logistics capabilities are enabled in a timely and efficient manner.

Within the supply chain execution facility, disparate activities take place. These physical processes must be tightly aligned to ensure the ability to deliver on the promise articulated previously. If warehousing is not connected to global trade and transportation, with necessary visibility, the supply chain won't work. Or it won't work well. Integrated supply chain execution is an absolute necessity if further connections to plan and manufacture are to drive demonstrable benefits. In other words, the intelligent supply chain relies on a fully integrated and connected fulfillment process.

Although it is not supply chain execution maturity specifically, Figure 2 shows how enterprises view their supply chain transformation maturity. Broadly lagging the midpoint (in other words, more companies are less mature than are more mature), the implications for a critical capability like supply chain execution is profound.

FIGURE 2

IDC's Digitally Enabled, Thinking Supply Chain Maturity Distribution Across the Stages



n = 150

Source: IDC's *Supply Chain MaturityScope Benchmark Survey*, 2019

THE ROLE FOR TECHNOLOGY IN SUPPLY CHAIN EXECUTION

Other than the factory network, supply chain execution runs more technology than any other area of the supply chain. This is both a blessing and a curse – more equipment to integrate and maintain, but more opportunities to redefine and redesign the way that work is done. The latter is likely to be more impactful than the former. The notion of an automated or technology augmented supply chain execution facility will be partly about use cases that drive efficiency, but it will also be about the ability to reduce latency and enhance supply chain execution "intelligence." In other words, it will enable a level of supply chain fulfillment performance heretofore unachievable. Technologies like IoT and machine learning will make real-time, accurate information available to the organization and enable automation of repetitive/operational tasks, which leads to less logistician intervention. Indeed, more data (and more diverse data) means better analytics, both retrospective and predictive, and better decisions taken in real time.

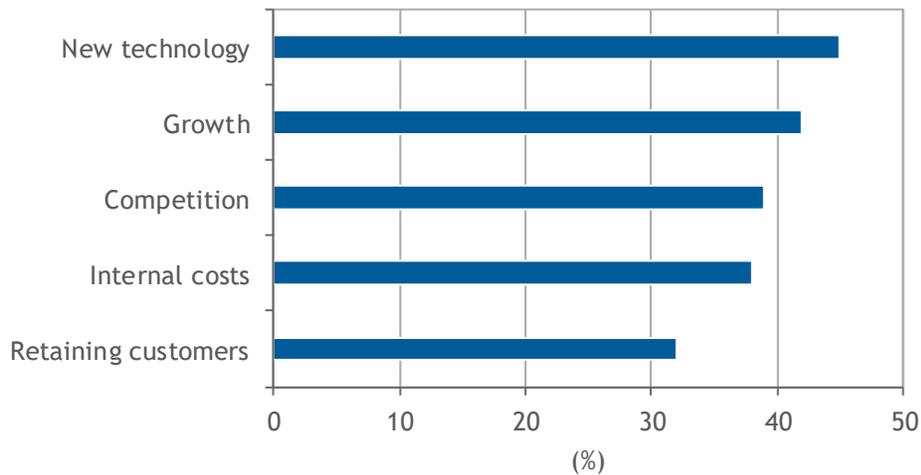
We have argued here that the supply chain is key to supporting new business models, and execution is key to enabling the supply chain. This will not be a trivial effort, and those that do it best will leverage *both* line-of-business and IT resources. IT, particularly, will be critical on the journey: Although supply chain organizations run the risk of expecting too much from technology, there is little question that it is viewed as having the potential to drive massive supply chain change. Figure 3 shows that new technology even

exceeds traditional drivers of change like growth and competition in today's supply chain. How times have changed! This does not mean, however, that supply chains should lose sight of the business problems they are trying to solve. At the end of the day, technology is simply a set of tools to bring to bear on those problems, *but* it now enables fulfillment capabilities previously unattainable.

FIGURE 3

New Technology Drives Change in the Supply Chain

Q. Which of the following are the most important areas driving change in your supply chain?



n = 300

Source: IDC's *Supply Chain Survey*, 2018

Technology, particularly analytics and machine learning, allows supply chains to leverage more and more data, interrogate smarter assets, utilize better tools to analyze and visualize data and, ultimately, enable faster (eliminate latency) and more effective fulfillment. As previously noted, technologies like IoT and machine learning enable automation of repetitive/operational tasks, which leads to less logistician intervention or even "touchless fulfillment." Yet it would be a mistake to view these technologies as necessarily replacing people. Ultimately, it is "technology with people" not "technology replacing people." Yes, there may well be some fulfillment roles that go away in favor of technology, but there will also be new roles created for people – likely more gratifying roles that involve more interaction with customer experiences.

Finally, there is the notion of the digital twin or, in the case of supply chain execution, the control tower. Having a model of the complex supply chain system is perhaps the central capability to allow companies to manage complexity without layering on unnecessary complexity as they move to an intelligent digital supply chain. Indeed, we view the supply chain digital twin as central to the concept of "intelligent." This does not necessarily mean a separate execution control tower, although that may be useful as a distinct part of an overall supply chain digital twin. To the degree that supply chain execution connects to the rest of the supply chain means that the notion of a digital twin will be critical to the future of fulfillment.

ESSENTIAL GUIDANCE

As previously stated, the supply chain, whether manufacturer, retailer, wholesaler, or something else, is now a critical function for companies to realize their business aspirations. The role of deliver, or supply chain execution, is ultimately the "face" of the shipper within the overall design-to-operate continuum – get that wrong and nothing else counts.

Although aspirational in the past, technologies like IoT and machine learning now enable automation of repetitive/operational tasks, which leads to less logistician intervention or even "touchless execution." This frees resources within the logistics department to become much more proactive in their roles, with a focus on value-added work such as what-if simulations/scenarios, strategic engagement with customers (or even consumers), and significantly reduce the time spent on fire drills. Evolving supply chain execution from a tactical focus to a strategic focus drives significant value for the overall supply chain and an improved experience for the customer.

As you think about your supply chain, the role that execution and fulfillment must play, and whether it is important as a competitive weapon in the modern, digital economy, consider the following:

- What will an intelligent digital supply chain mean for your business – is it important? If so, why? What role must supply chain execution play for your business?
- What value will you get from a supply chain execution facility that has the bandwidth to be a strategic engine rather than a tactical engine for business growth?
- How much value does resources allocated to improving the customer experience generate for your business versus the tactical firefighting that exists today?
- Explore modern digital technologies – they are necessary ingredients to enable rapid, accurate decision making.
- The capability to flexibly customize and deliver starts with better understanding customer needs and demand and integrating this information into the supply chain.
- Eliminate the complexity of siloed execution and fulfillment technology, data, and systems.

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

Global Headquarters

5 Speen Street
Framingham, MA 01701
USA
508.872.8200
Twitter: @IDC
idc-community.com
www.idc.com

Copyright Notice

External Publication of IDC Information and Data – Any IDC information that is to be used in advertising, press releases, or promotional materials requires prior written approval from the appropriate IDC Vice President or Country Manager. A draft of the proposed document should accompany any such request. IDC reserves the right to deny approval of external usage for any reason.

Copyright 2019 IDC. Reproduction without written permission is completely forbidden.

