

White Paper

Surviving Supply Chain Disruption – Digitally Transforming from Innovation to Execution

Sponsored by: Celestica

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IDC MANUFACTURING INSIGHTS OPINION

At no prior time in the history of the supply chain has there been more change – or the potential for change – than there is today. IDC is increasingly seeing companies disrupting their industry segments based on new and digitally enabled supply chain capabilities that their competitors cannot immediately match. While disruption is happening at different speeds across different industries, it is happening to one degree or another in all of them. Indeed, IDC's *Supply Chain Transformation – Thought Leadership Survey*, which was conducted for this white paper, shows that a majority of manufacturers are expecting either an existing competitor or a digitally native new market entrant will leverage digital transformation (DX) for competitive advantage within the next five years. Of these manufacturers, most felt that DX would either drive them out of business entirely or significantly affect their business' performance.

At the same time, the implications of digital technology are huge. Perhaps the most surprising observation from our survey is that when respondents were asked about the top areas driving change in their business, they overwhelmingly cited "new technology." We have **never** previously seen this area as the top driver in any of the supply chain surveys we have conducted. The top driver has usually been growth, cost savings, or retaining customers. That manufacturers view new technology as the biggest driver of change reflects the enormous opportunities that digital transformation poses and underscores what a remarkable period it is for the supply chain.

Thus manufacturers today are faced with the realization that they must digitally transform and simultaneously extend supply chains beyond their traditional reach. Even today's best-in-class supply chains must transform or will find themselves left behind. "Supply chain" no longer fits into a nice planning/design/execution box – modernizing a supply chain entails the extension of processes upstream to product innovation, design, and development and downstream to manufacturing processes and execution. It also requires a modern approach to outsourcing – what to keep, what to contract out, and how to optimize a blend of both. Digital transformation is present and necessary across all industries, whether discrete or process manufacturing, and manufacturers that don't transform will struggle to grow – or worse, find themselves out of business.

IN THIS WHITE PAPER

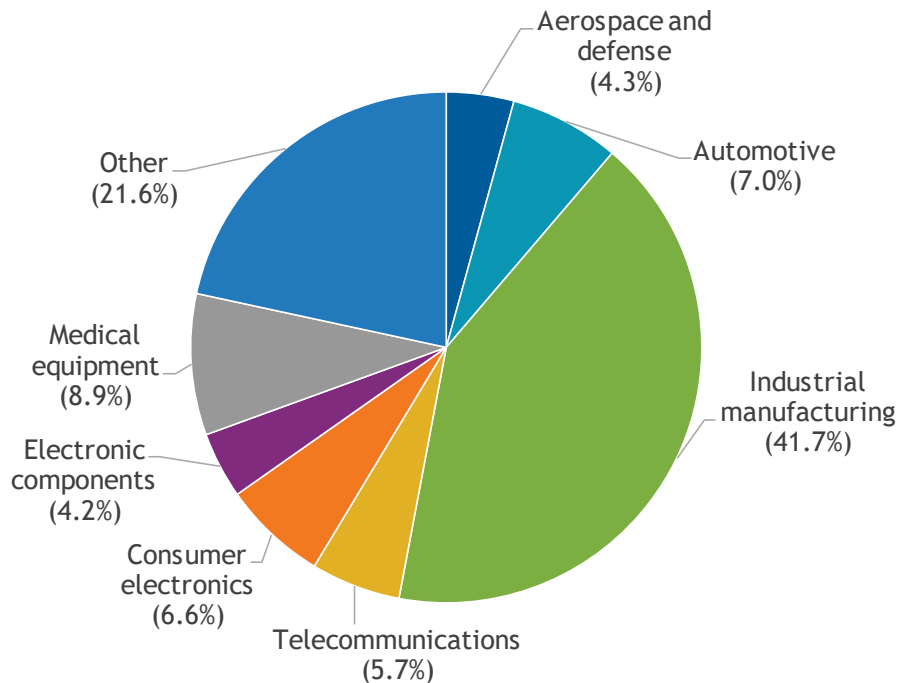
In this white paper, IDC Manufacturing Insights group looks at the state of the manufacturing industry, focusing on key challenges and opportunities relating to digital transformation of the supply chain. To get as current a view as possible, we recently conducted a survey of global manufacturing companies focusing on areas of both opportunity and challenge that digital technology presents.

IDC's *Supply Chain Transformation – Thought Leadership Survey* was conducted in November 2017 and comprises responses from 627 senior supply chain decision makers, all of whom identified themselves as familiar with their organizations' supply chain strategy, product development or operations, or information technology (IT) supporting those areas. The survey also cuts across multiple subsegments in the manufacturing industry and across company size. The subsegments are summarized in Figure 1. In terms of company size, of the surveyed companies 29% were large enterprise, 19% medium-sized enterprise, and 52% small enterprise. The survey was conducted across the three major regions: North America, Europe, and Asia/Pacific.

FIGURE 1

Respondents by Industry Subsegment

Q. In which of the following industries does your company operate?



n = 627

Source: IDC's *Supply Chain Transformation – Thought Leadership Survey*, November 2017

We discuss the DX concept extensively in this document, so it is important to establish what we mean by digital transformation. Although the exact approach and architecture of DX will be different for individual companies, there is a standard definition. IDC sees DX as the application of emerging technology for improved decision making – more specifically, including the following elements:

- Extension to new sources of innovation so you can meet customers' need for options and experiences
- Use of information to make better decisions, faster – resulting in better design, better collaboration, better manufacturing, and better quality products
- Use of 3rd Platform technologies and innovation accelerators including IoT, robotics, and 3D printing to connect the organizations, products, and value chains to improve productivity, competitiveness, and societal benefit.

Practically speaking, this means creating a digitally enabled "thinking" supply chain that brings flexibility and adaptability to both current and future business opportunities and challenges while being more efficient and effective and resilient to external disruption.

Note: All numbers in this document may not be exact due to rounding.

KEY THEMES

IDC's *Supply Chain Transformation – Thought Leadership Survey*, commissioned by Celestica, asked questions across a number of supply chain topics to identify and better understand those critical areas of challenge and opportunity that DX presents. Although there were many interesting findings, we have crystalized the responses into four key themes. We explore each of them in detail in this document:

- **Product quality and innovation.** Quality has long been a reason why manufacturers invest in technology, and the current digital transformation movement is no exception. Quality has been consistently cited in IDC Manufacturing Insights' *Product and Service Innovation Surveys* and *Supply Chain Surveys* as the top priority for manufacturers and a primary reason for investments in product development and supply chain technology. At the same time, most manufacturers view their R&D efforts as insufficient in meeting their future needs for quality new products and are interested in both increasing owned R&D investment and continuing to extend innovation externally.
- **Disruption and efficiency.** Our survey shows that manufacturers overall are expecting either an existing competitor (63%) or a digitally native new market entrant (54%) will leverage digital transformation for competitive advantage within the next five years. Yet manufacturers cite the need for improved productivity within all aspects of the enterprise, from product development to supply chain to manufacturing and to service, as a key reason for digitally transforming. While the specter of disruption may be in the back of executives' minds, the opportunities for digital transformation to drive productivity gains is front of mind.
- **New technology as a driver of change.** As previously noted, perhaps the most surprising observation is that when respondents were asked about the top areas driving change in their business, they overwhelmingly cited "new technology." That manufacturers view new technology as the biggest driver reflects the enormous opportunities that digital transformation poses and underscores what a remarkable period of change it is for the supply chain. Yet, as clearly shown from the survey responses, there remain significant concerns about consequential cybersecurity vulnerabilities.

- **Outsourcing to be a critical element of digital transformation.** The multidecade outsourcing trend in supply chain continues as companies digitally transform. In fact, it becomes even more important, acting both to quickly adopt technological capabilities that may be beyond a company's core competencies and to establish a path to securing the best-in-class capabilities that will be necessary to compete in an online, digital world.

PRODUCT QUALITY AND INNOVATION

Quality is the leading focus for supply chain and product development executives. Fully 45% of the survey respondents cite quality as most important to their business. This is consistent with other IDC survey results over the past three years that show technology plans and investments for supply chain and product life-cycle management technology to be driven by quality improvement goals. Indeed, the primary focus of the supply chain has been evolving for some years now, from one of cost centrality to quality centrality. This does not mean, of course, that cost and service are not still important, they are; it's just that quality has eclipsed them as the most important capability. Accelerating this is the connectivity and increased visibility of assets, products, and supply chains through IoT, cloud, and analytics. Manufacturers have always focused on quality products, manufacturing, delivery, and service, but today, they have the tools and platforms in place for an enterprisewide, proactive, and predictive view of quality.

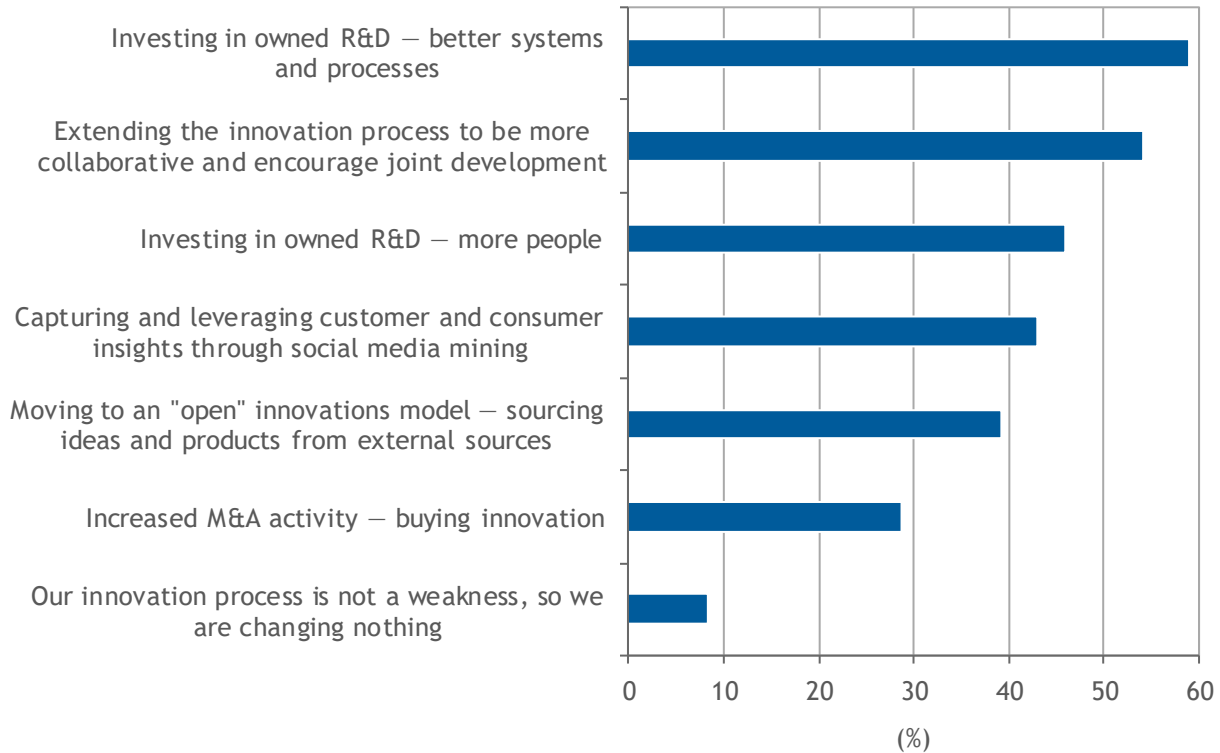
At the same time, when manufacturers think now about digitally transforming, or modernizing, their supply chain, the scope of engagement is much broader than in the past. It now includes R&D, engineering, manufacturing, quality, and services. Consideration needs to be given to the connections upstream to innovation processes and downstream to manufacturing and aftermarket sales/service so that supply chain plans, risk models, and capabilities can be properly and holistically vetted. The "supply chain" is thus being re-architected so that innovations and designs can be modeled concurrently with manufacturing, delivery, and service to improve products or assets in the most optimal and profitable way. Constantly changing demand, customer preferences, product customization, and market conditions increasingly demand this. While the notion of an extended, open supply chain may not be new, modern technologies such as cloud, mobile, analytics, social business, IoT, and advanced security have allowed the "aspirations" to become a reality.

The focus on innovation is clear with manufacturers' plans to own their R&D process. Our survey clearly shows that most respondents (75%) view both product design and product development as a core competency that should remain in-house, and although this varies a bit by country and industry, it remains above 50% for the majority. When we asked respondents specifically about investment priorities, we get a more nuanced response. Almost 60% of respondents, for example, say that they believe investing in systems to support the owned R&D process is a priority, but they also almost equally believe that it is something most optimally done across their ecosystem. At IDC, we see core R&D as initial ideation, design, scoping, and the development process itself. We've seen manufacturers begin to focus on establishing an innovation management (front end of innovation) process that spans ideation, costing, product portfolio management, and requirements and is supported by innovation teams that work across domains. The survey results illustrated in Figure 2 show a multipronged way forward for R&D that includes both investing in better systems and processes and also, though to a lesser degree, people and extending the process externally.

FIGURE 2

R&D Focus

Q. What are the top 3 priorities for your business in the next two to three years?



n = 627

Source: IDC's *Supply Chain Transformation – Thought Leadership Survey*, November 2017

There is, however, a dichotomy with this desired ownership of R&D in that manufacturers also responded to our survey that they want to work with external suppliers and partners as part of the innovation process. Respondents from Asia/Pacific countries in particular have a focus on leveraging open innovation – sourcing new product and process ideas from external parties. This is consistent with what we see from manufacturers across industry: A realization that to compete globally with innovative, fresh products and services, you need an ecosystem and that the wisdom of crowds is simply more powerful than that of a small development or R&D group. Crowdsourcing has become an important innovation and problem-solving tool for manufacturers not only in the fast-moving consumer goods (FMCG) industry but increasingly in industries as diverse as life sciences, high tech, aerospace, and automotive. The reality is that manufacturers need to manage and improve complex products and product portfolios and collaborate with multitiered supply chains (where tier 1 suppliers are often key design partners) while collating and analyzing massive amounts of data flowing from these products and value chains.

This requires a robust R&D process, mindful of quality, that balances owned capabilities with external collaboration. The automotive industry, moving toward fully autonomous vehicles by 2021, is a great example of this: The level of technical capability required with sensors, mapping, and artificial intelligence platforms, combined with the ability to service the new business model, doesn't yet exist at most auto manufacturers. So while they must focus internally and effectively to steer their companies to this new industry model, they can't proceed on their own. That's why OEMs, tier 1 manufacturers, high-tech companies, and service firms all contribute today to a productive automotive ecosystem.

As manufacturers leverage digital technologies and new approaches like cloud-based commerce networks or product innovation platforms, the reality is that an insular approach is unlikely to yield best-in-class R&D performance as well as high levels of product and process quality. A product innovation process needs to be closely tied to supply chain design, planning, and execution to effectively meet customer demand.

DISRUPTION AND EFFICIENCY

Although the notion of disruption is compelling to most manufacturers as they contemplate the future for their supply chain, the reality for many of them is that driving efficiency remains a critical priority in the here and now. While there are many reasons to pursue modern digital transformation efforts, *improve productivity* was the top driver for DX in our survey results (see Figure 3).

DX as an enabler of improved productivity was the top driver across multiple countries, including the United States, Canada, France, and Germany. Both China and Japan felt that the *flexibility of our products and services to incorporate DX and enhance the experiences for customers and consumers* was the top driver.

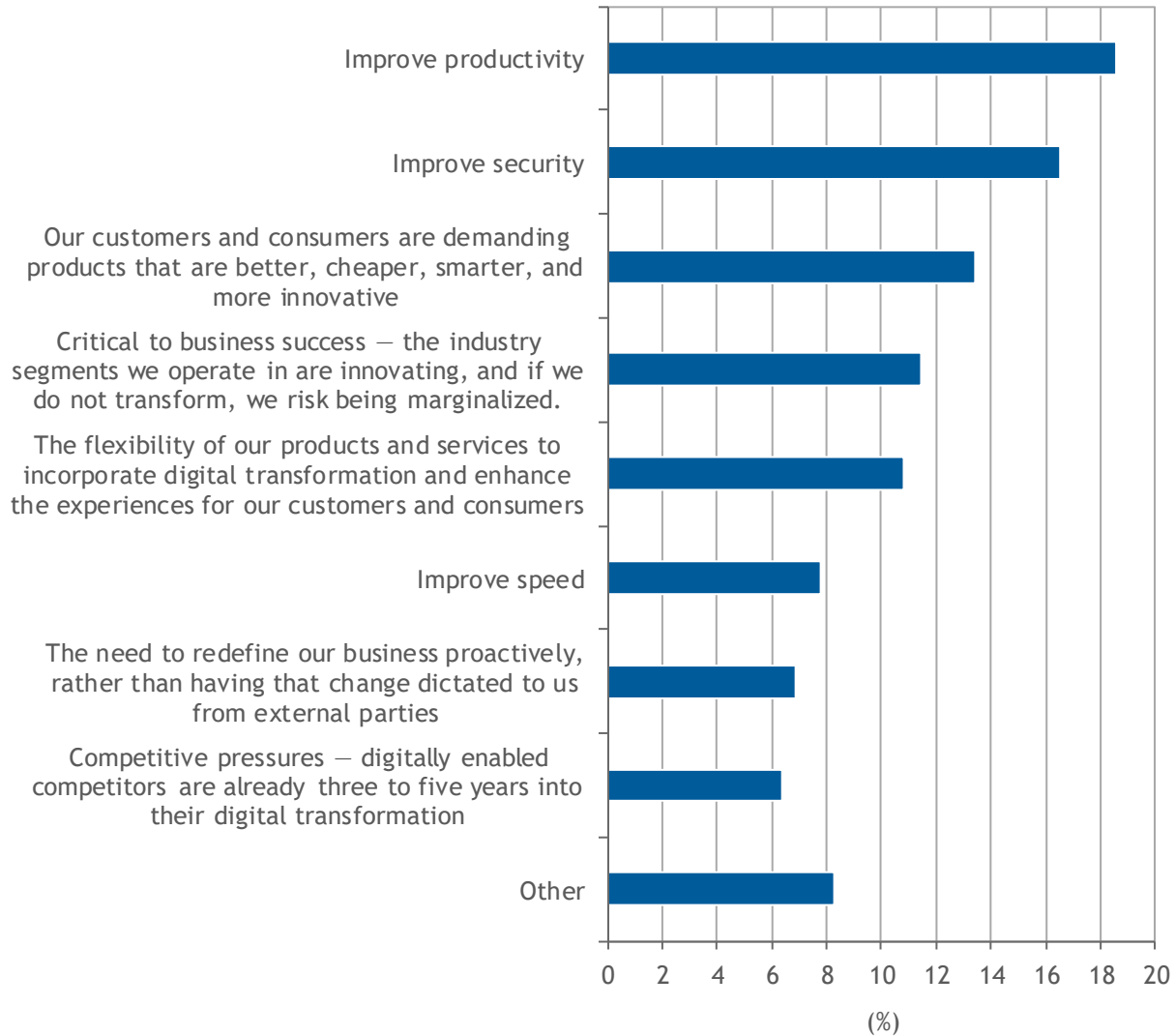
While drivers such as "security," "customer experience," and "changing demands from customers and consumers" are clearly important, the supply chain remains focused on ways to drive efficiency and effectiveness. While the specter of disruption may be in the back of executives' minds, the opportunities for digital transformation to drive productivity gains are clearly front of mind. Indeed, when we asked respondents about overall priorities for their supply chains separate from the considerations of DX in the next year, 47% said that *reducing costs and eliminating waste* were their top priorities – far higher than any other response. Leveraging DX and new technologies to help drive existing productivity programs will clearly be an important component of supply chain focus for the next few years. This also has interesting implications for the justification for DX. While longer-term disruption mitigation is important, it's difficult to put a dollar value on it. Shorter-term productivity efforts, however, are relatively easy to assign a value. We increasingly see manufacturers using DX-related productivity gains as the justification for their overall DX programs. Security was cited as the second most important driver of DX, and we have seen this in other C-level and IT bodies of research conducted by IDC. It is not surprising, given the security concerns that many companies have as they move to cloud-based systems. There is no question that as companies further digitalize their supply chains, the "attack surface" for cyberintrusion grows. The irony is that those same digital technologies that potentially expose risk are also the technologies that are being employed to enable better and more responsive security protocols and tools.

If productivity and security in the supply chain are the near-term focus, the specter of competitive disruption is the longer-term fear. There will be major new innovations in the way that supply chains are designed and operated in the next few years; many of them will be a function of digital transformation.

FIGURE 3

Drivers of DX

Q. What are the top drivers of DX?



n = 627

Source: IDC's *Supply Chain Transformation – Thought Leadership Survey*, November 2017

How companies prepare for disruption will determine in great part how well they survive; respondents were asked about this in two ways: one, whether an existing competitor was likely to leverage DX for competitive advantage, and two, whether an external digital-native company was likely to leverage DX for competitive advantage (see Table 1). At IDC, we believe it is critical that the supply chain think about both of these potential disruptions. Although there are examples of existing competitors disrupting their market segments, the fact is that many of them are start-ups that come from outside the traditional industry. Dollar Shave Club, now part of Unilever, has disrupted the shaving industry.

According to the survey, 35% of respondents said a current DX-enabled competitor would have gained a competitive advantage in their markets within the next year; 32% felt it would be an external DX-native competitor. Extend the timeline to five years, and it's 62% and 56%, respectively.

TABLE 1

DX-Enabled Competitors

Q. How likely is it that a current competitor/digitally native competitor could invest in DX and gain a competitive advantage?

| | Current DX-Enabled Competitor | Digitally Native External Competitor |
|---------------------------------|-------------------------------|--------------------------------------|
| It has already happened | 10.0 | 8.1 |
| Highly likely within one year | 25.5 | 24.4 |
| Highly likely within five years | 27.7 | 23.6 |
| Moderately likely | 27.1 | 26.9 |
| Unlikely | 8.6 | 14.5 |
| Never | 1.2 | 2.6 |

n = 627

Source: IDC's *Supply Chain Transformation – Thought Leadership Survey*, November 2017

NEW TECHNOLOGY AS A DRIVER OF CHANGE

The supply chain has been an enthusiastic adopter of technology for almost all of its existence; yet it has never been viewed as a driver of change, rather as an enabler of change. As DX gains traction in manufacturing, we are seeing this perception shift. One of the more surprising responses from our survey is that when respondents were asked about the top areas driving change in their business, they overwhelmingly cited "new technology." Top drivers of change are usually growth, cost savings, or retaining customers. That manufacturers view new technology as the biggest driver reflects the perceived untapped potential of these technologies and the enormous opportunities that digital transformation presents (see Figure 4).

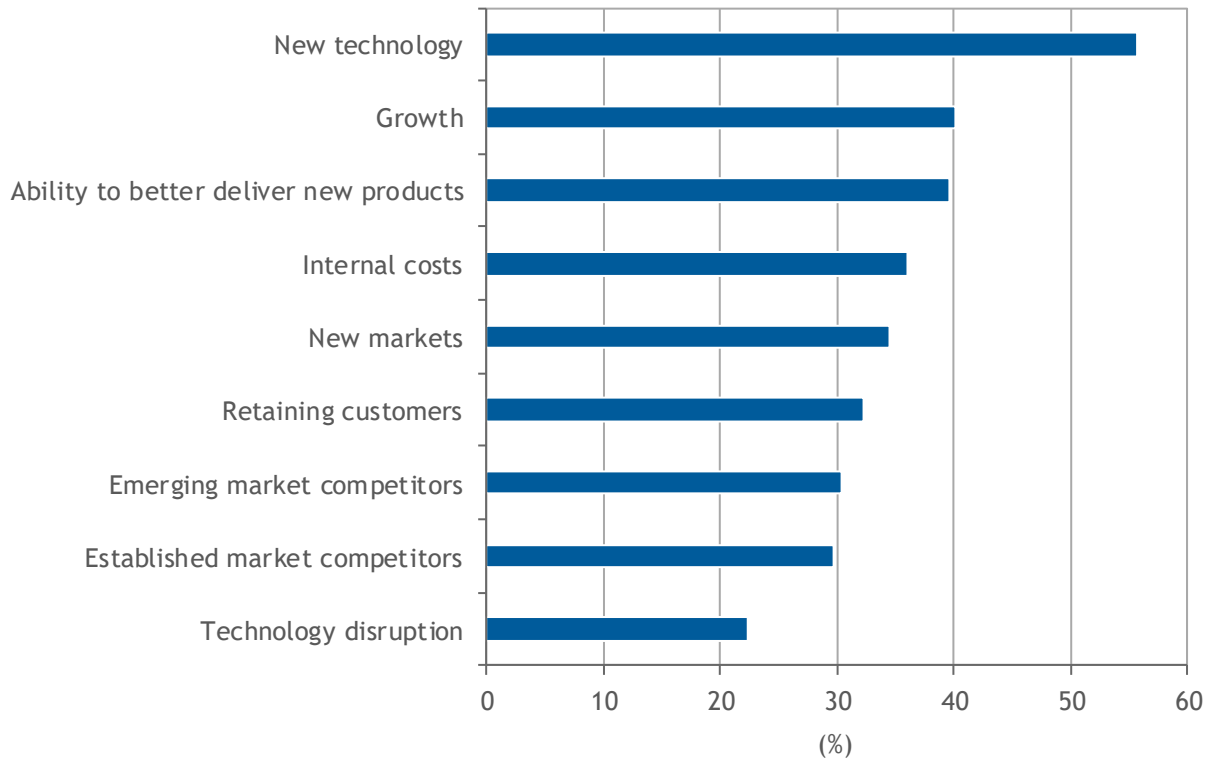
There is an interesting dichotomy in the data, however. While "new technology" was ranked as the top driver of change, "technology disruption" was ranked much lower down. How do we reconcile this? The answer, based on many conversations with manufacturers, reflects the level of maturity, or the lack, thereof, of digital transformation in the supply chain – thus the notion of untapped potential. While many companies view digital technologies as the likely driver of massive changes in the way they operate their supply chain, a much smaller percentage of them actually see technology disruption of the supply chain as likely. At IDC, we'd suggest that this may be naive, and that as the promise of these new technologies turns to actual and pragmatic capabilities, the inevitable disruption will occur.

The other point that many supply chain people note is that because new technology is so potentially impactful, the majority of companies will explore that potential and not be caught unprepared. If the history of technology adoption and of disruption in the supply chain is any indicator, however, there will be casualties.

FIGURE 4

Top Drivers of Change

Q. Please rank the top drivers of change in your business?



n = 627

Source: IDC's *Supply Chain Transformation – Thought Leadership Survey*, November 2017

The other critical dimension to technology as a driver of change is the impact on security and cybersecurity specifically. Digital technologies, and digital transformation more broadly, are viewed both as a source of potential security vulnerability and as a way to drive better security.

As previously noted, improving security is cited as a top driver of DX; yet respondents concurrently cited security concerns as the second most significant digital transformation concern (see Table 2), and it doesn't change much three years from now. It is also a global concern with most of the developed countries citing security as a top concern both now and into the future. Interestingly, China did not view security as a concern today, but it climbed to the top spot in three years. This suggests a maturing of the manufacturing industry in China and a recognition that things such as intellectual property security are important.

A majority of companies have been the target of a cyberattack, either directly (43%) or indirectly as a result of an ecosystem partner attack (54%). In both categories, a further 20% of them believe it is just a matter of time. As a result, we see a significant number of companies looking to digital tools as a way to help prevent further attacks. Thus the irony noted previously. As companies progress with digital transformation in their supply chain, potential vulnerability grows even as those same digital competencies portend the future of modern, powerful security approaches and technology. Indeed, almost one-third of respondent companies said they were investing in advanced cybersecurity tools, with a further 23% partnering with cybersecurity providers to bolster their defenses. Although North America is predominantly investing in more sophisticated cybersecurity tools, Europe and Asia are prioritizing partner providers.

TABLE 2

DX Challenges

Q. Describe the top 3 challenges you face in digitally transforming your business?

| | Today | In the Next Three Years |
|------------------------------|-------|-------------------------|
| Cost | 50% | 43% |
| Security concerns | 43% | 39% |
| Elusive business case/ROI | 23% | 28% |
| Lack of technology expertise | 33% | 24% |
| Change management | 37% | 27% |

n = 627

Source: IDC's *Supply Chain Transformation – Thought Leadership Survey*, November 2017

OUTSOURCING TO BE A CRITICAL ELEMENT OF DIGITAL TRANSFORMATION

The multidecade outsourcing trend in supply chain continues as companies digitally transform. At IDC Manufacturing Insights we have argued that, in fact, it becomes even more important in the context of digital transformation, both as a way to quickly adopt technological capabilities that may be beyond core competency and to ensure the best-in-class capabilities necessary to compete in an online digital world. *Lack of technology expertise* is cited as a significant challenge to progressing DX efforts, with a third of respondents citing it as a problem (refer back to Table 2). The ability for businesses, most of which are not in the technology business, to adopt and adapt new technologies solely based on internal competencies is just not practical anymore – particularly with the accelerating progress of many digital technologies in the market. Far better, in our view, is to partner with the right technology providers. But it is also about blending internal and external competencies. As we have researched the likely path for digital transformation in the manufacturing supply chain, it has become clear that there are key gaps that must be "closed," and our research shows that these gaps are most likely to be best approached with a blended insource/outsource approach.

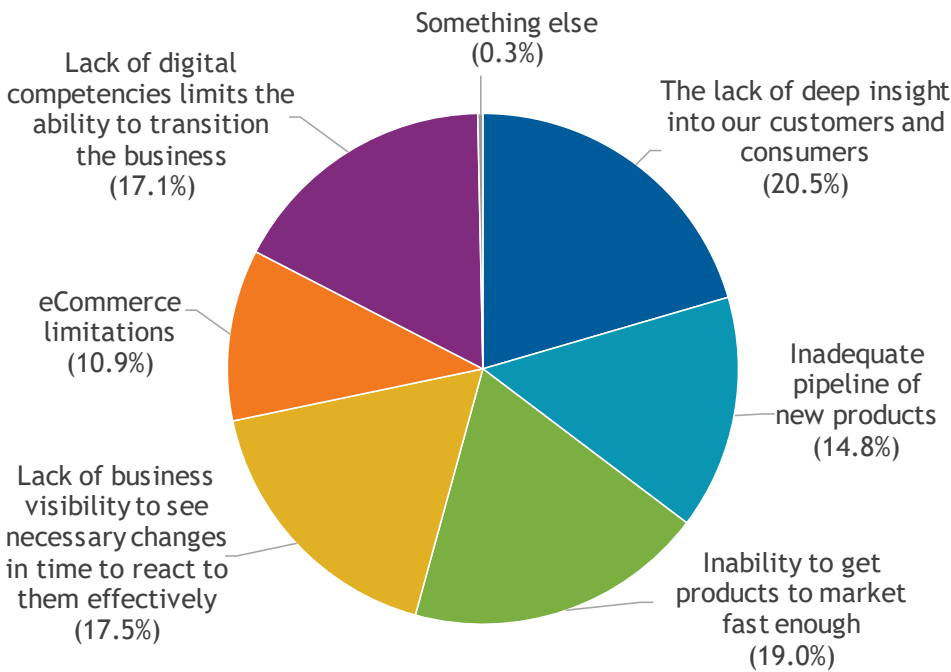
We asked survey respondents to think about their current business and what gaps are likely to be the most problematic if not addressed. Figure 5 summarizes those responses. Conversations with manufacturers reveal the prevailing view is that "we are not a technology company and are going to have to identify key partners to aid us in our supply chain transformation." The specifics vary, of course, but the kinds of areas include ecommerce/B2B backbone, general and specific digital competencies, and both extending and externalizing the innovation process – three of the critical gaps in Figure 5. The urgency for companies to identify key partnerships as enablers for supply chain digital transformation seems quite clear.

It's a global phenomenon across all industries. For Asia, it is about needing better insight into customers and transitioning business models as a consequence of that insight. For Europe, it is about innovation and the lack of adequate supply chain visibility. For North America, it is about innovation and customer insight. These are critical capabilities that the supply chain plays an enormous role in facilitating.

FIGURE 5

Critical Gaps to Be Closed in Business

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



n = 627

Source: IDC's *Supply Chain Transformation – Thought Leadership Survey*, November 2017

THE DX IMPERATIVE – PRESENT REALITIES

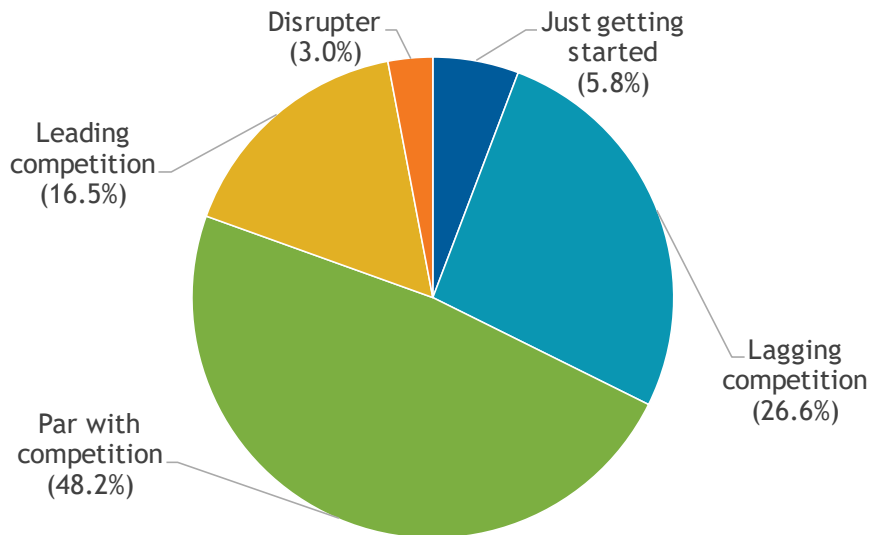
Supply chain digital transformation is relatively immature at most manufacturers today, which is consistent with prior IDC research. Indeed, it is the view of IDC that modern digital technologies present a once-in-a-generation opportunity to transform the supply chain, whether being connected via IoT or cognitively enabled or possessing of comprehensive real-time analytics. Yet progress is slower than we might have predicted.

Figure 6 illustrates that 32% of companies are just getting started with DX or feel they lag behind competitors, about half of them feel they are on par with competition, and less than 20% feel they are leading competition or disrupting. Strategically, more companies view DX as a way to improve the things that they do or to tactically address opportunities as they become apparent (68%) versus those that are thinking in terms of disruption (22%). This further supports our previous contention that for the majority of organizations, today, DX is more about efficiency and effectiveness than it is about disruption.

FIGURE 6

Competitive View of DX

Q. How would you assess the state of digital transformation at your company?



n = 497

Source: IDC's *Supply Chain Transformation – Thought Leadership Survey*, November 2017

If one looks at the S&P 200 today and compares the list with the same index 15 years ago, almost 50% of the companies listed have disappeared (mergers, goes out of business, etc.) (see Figure 7). While this kind of change has always been true to one degree or another, there is every reason to think that this trend will accelerate over the next 15 years. In the automotive industry, for example, how will ridesharing technologies that enabled Uber as a disruptive business model impact the sale of cars? Clothing manufacturers such as Under Armour are already moving aggressively into data collection and analytics to boost their sales. There are countless examples, and while individual companies may

not be the ultimate disrupters, the capabilities that digital transformation enables in the supply chain will be critical to those that are. So if we accept that half, or more than half, of today's businesses are going to disappear, we asked survey respondents the question: How is your company working to ensure it is in the half that survives?

FIGURE 7

Factors to Survive

Q. *Every 15 years or so more than half of the companies disappear (mergers, goes out of business, etc.) from the S&P 200. How is your company working to ensure it is in the half that survives?*



n = 627

Source: IDC's *Supply Chain Transformation – Thought Leadership Survey*, November 2017

The top 3 answers to this question in our survey are a focus on embracing DX, engaging with customers, and diversifying products and services – all interrelated as each answer is dependent on the other. DX platforms and technology enable closer engagement with customers, which leads to more diversified products and services. Companies recognize that their business will not grow, or they will be out of business, if they don't digitally transform – indeed 67% say that failure of DX will mean marginalization and business loss.

The reality is that digital disruption can come from anywhere and at any time. It is also often that the disrupter comes upon their disruptive capabilities "accidentally." The key, though, is to be prepared. An interesting example of this is the case of Netflix. Although the company was always online for ordering, the early implementation of the business model was to ship physical movies to consumers' mailboxes. The main player at the time, Blockbuster largely viewed this as something that was unlikely to drive disruption and something that it could copy. But Netflix was technologically prepared in ways that Blockbuster was not; so when the ability to stream content emerged and became the primary trigger for disruption, Netflix embraced it and thrived, but Blockbuster did not/could not and ultimately found itself out of business.

The cost, or perceived high cost, of DX is currently a key limiter of supply chain transformation and investment for manufacturers and will continue to be an issue into the near future. Perhaps the better question, though, is what is the cost of nonparticipation. Existing or emerging competition enabled by digital supply chain capabilities is not going away, and eventually all markets will be affected.

THE FUTURE

IDC predicts that by the end of 2018, fully one-third of companies will find themselves disrupted by digitally enabled competition, many of them as a consequence of having insufficient supply chain capabilities. While disruption is happening at different speeds across different industries, it is happening to one degree or another in all of them. Industries such as consumer electronics or retail, which engage more directly and intimately with the consumer, are moving more rapidly to transform the customer experience; industries such as chemicals or semiconductor, which tend to be driven by manufacturing economies of scale, are moving less rapidly.

So how do plans change in three years for our survey respondents?

Many of the same challenges will prevail of course, although they become more pervasive as manufacturers move to extend and broaden their innovation, supply chain, and manufacturing approach. Profitable sales growth and productivity gains are still essential, but the ways in which these things are enabled must inevitably change. Table 3 summarizes the responses to the question of "As customers that buy your products change, what does that 'primarily' mean for your business' strategy in the next two to three years? And what will that mean beyond three years?"

TABLE 3

Changing Business Strategy

Q. As industries that buy your products change (e.g., people moving to ridesharing versus buying automobiles), what does that 'primarily' mean for your business' strategy in the next two to three years? And what will that mean beyond three years?

| | In the Next Two to Three Years | Beyond Three Years |
|---|--------------------------------|--------------------|
| We are continuously looking at new markets and new product areas | 41% | 29% |
| We are moving to new technologies and digital operations to be as nimble and flexible as possible | 28% | 28% |
| We will shift from products to products and services | 19% | 26% |
| We expect our products to be in demand for many years, so this is not something we are thinking about yet | 12% | 16% |

n = 627

Source: IDC's *Supply Chain Transformation – Thought Leadership Survey*, November 2017

While the search for new markets and products remains a core element of growth, and always will, the importance of digital technologies to business strategy both within three years and beyond is notable – this suggests that manufacturers view DX as a longer-term "journey." Yes, it is a "journey" fraught with peril, in terms of both **what to do** and **how to do it**.

The challenges that manufacturers face in digitally transforming their business are expected to remain significant, even beyond three years. Certainly, things like technology expertise and cost are expected to improve, thus they will be less of an impediment; although this does not necessarily mean that companies will be developing expertise in-house. As previously noted, outsourcing of technology expertise is likely to grow as DX progresses. What is more interesting is the view, for example, that the expected ROI from DX becomes harder over time. With the shift from a product focus to a service focus, and the move to digital innovation, supply chain, operations, and manufacturing, one can understand this. Security concerns remain largely stable, reflecting the view that as DX progresses the "attack surface" for cyberintrusion grows (see Table 4).

TABLE 4

DX Challenges

| | Within 12 Months | In the Next Three Years | Delta |
|--|------------------|-------------------------|-------|
| Lack of technology expertise | 34% | 25% | -9 |
| Lack of bandwidth to explore possibilities | 18% | 21% | +3 |
| Elusive business cases/ROI | 23% | 28% | +5 |
| Current approach meets our requirements; no change necessary | 20% | 18% | -2 |
| Cost | 50% | 43% | -7 |
| Security concern | 43% | 39% | -4 |
| Don't know where to start | 13% | 12% | -1 |
| Difficulty in identifying the right partners | 21% | 27% | +6 |
| Change management/personnel/legacy systems resistance | 37% | 27% | -10 |

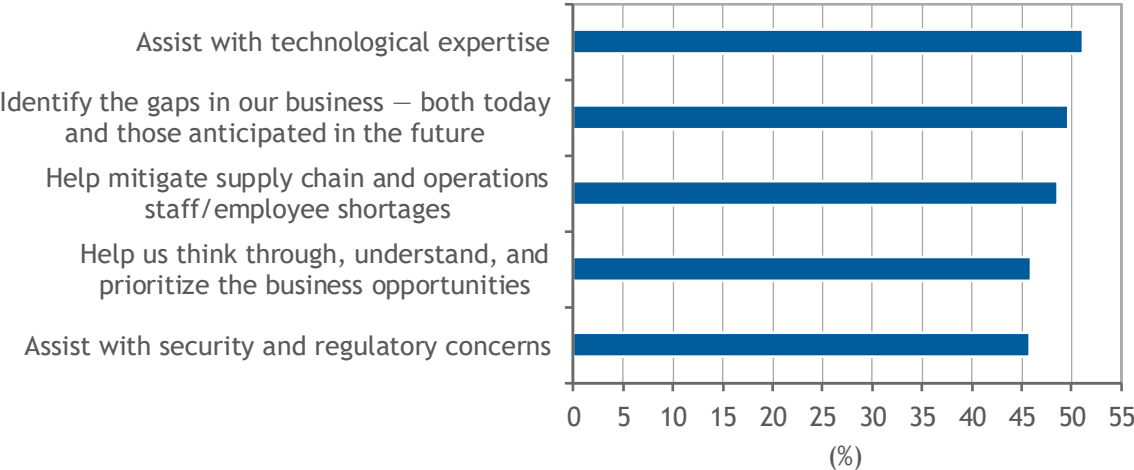
n = 627

Source: IDC's *Supply Chain Transformation – Thought Leadership Survey*, November 2017

The ability to identify and evaluate the right partners for digital transformation also grows as a problem. Although it might be assumed that as technologies progress, the credible partners will become self-evident; in speaking with a few companies, they have noted the proliferation of companies that self-proclaim digital expertise – and that it's getting harder to separate "pretenders" from "contenders." Indeed, the role of the partner in DX will be significant, and ascendancy of technology expertise as the most important external role (52% of respondents) is both new and reflective of the overall opportunity and challenge digital technology presents (see Figure 8).

FIGURE 8

Role of DX Partners



n = 627

Source: IDC's *Supply Chain Transformation – Thought Leadership Survey*, November 2017

ESSENTIAL GUIDANCE

Manufacturers in all industries are experiencing digital transformation across their business – either internally initiated change or as a consequence of competitive activity. Transformation impacts the business at all levels, and across all functions, but it is particularly impactful to the supply chain – changing how products are designed and brought to market, the role that supply chain planning and execution process plays, the way in which products are manufactured, and the level of engagement is with customers and consumers. Manufacturers recognize that if their digital transformation efforts are not successful for their supply chains, their company will be marginalized, they won't be competitive and, eventually, may go out of business.

Clearly, there are challenges technically and organizationally for manufacturers to address as they digitally transform. They are faced with complex products, supply chains, and manufacturing processes, and while they may see the need to enhance digital technology skills and resources, the precise way forward is not always clear. As previously noted, the lack of technology expertise, elusive business cases, and the lack of bandwidth to explore possibilities are all problems. These all call for a wide internal and external ecosystem of enabling employees and partners.

Key Takeaways

With those concluding thoughts, our advice for manufacturers is as follows:

- The digital transformation journey in the supply chain must start now. We are already seeing businesses marginalized as a result of lagging supply chain capabilities, and this will only accelerate. If companies do not quickly modernize the supply chain and begin implementing digital transformation, they will not be able to keep up.
- Digital transformation is not a trivial undertaking. It requires organizations to fundamentally rethink how they create new customer experiences, what kind of supply chain model is needed to deliver those experiences, and how information is used to facilitate the speed, scale, and resiliency demanded of the supply chain by the digital economy. And it won't all happen tomorrow. Digital transformation, for any company, will have stops and starts, and capabilities that seem critical today will surrender to new ways of working and new ways of conducting business that will become apparent as digital technologies mature in the marketplace.
- Don't travel the DX journey alone; partners can be agents of transformation. Companies need support from partners with technological expertise to identify gaps in their business and mitigate supply chain and operations shortages. The digital transformation will only be possible through collaborating with a diverse team and an ecosystem of partners.

Take a long-term view of digital transformation to get the right priorities and people in place. Our survey showed that most companies currently feel they have the right talent in place and worry more about pushback to changing legacy systems. Three years from now, it's a very different story – they are less concerned about pushback and more so about finding the right use cases and partners:

- Security should not take a back seat. Currently, over half of companies surveyed see security as an obstacle to transformation. However, as companies move to cloud-based systems, it will become even more imperative to implement comprehensive cybersecurity measures as part of the digital transformation.
- Expanding knowledge of digital capabilities and competencies is vital foundationally for digital transformation, including technologies such as cloud, mobile, analytics, blockchain, 3D printing, and advanced security.

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