The Digital Supply Chain's Missing Link:

FOCUS

Introduction

The digitization of the supply chain is one of the major value and growth opportunities for businesses today, with the potential to make a significant difference to their performance and future prospects. We surveyed supply chain executives at more than 1,000 organizations across consumer products, manufacturing, and retail. Our aim was to understand the digital initiatives they are adopting, the benefits they are deriving, and the ways in which they are transforming their supply chains.
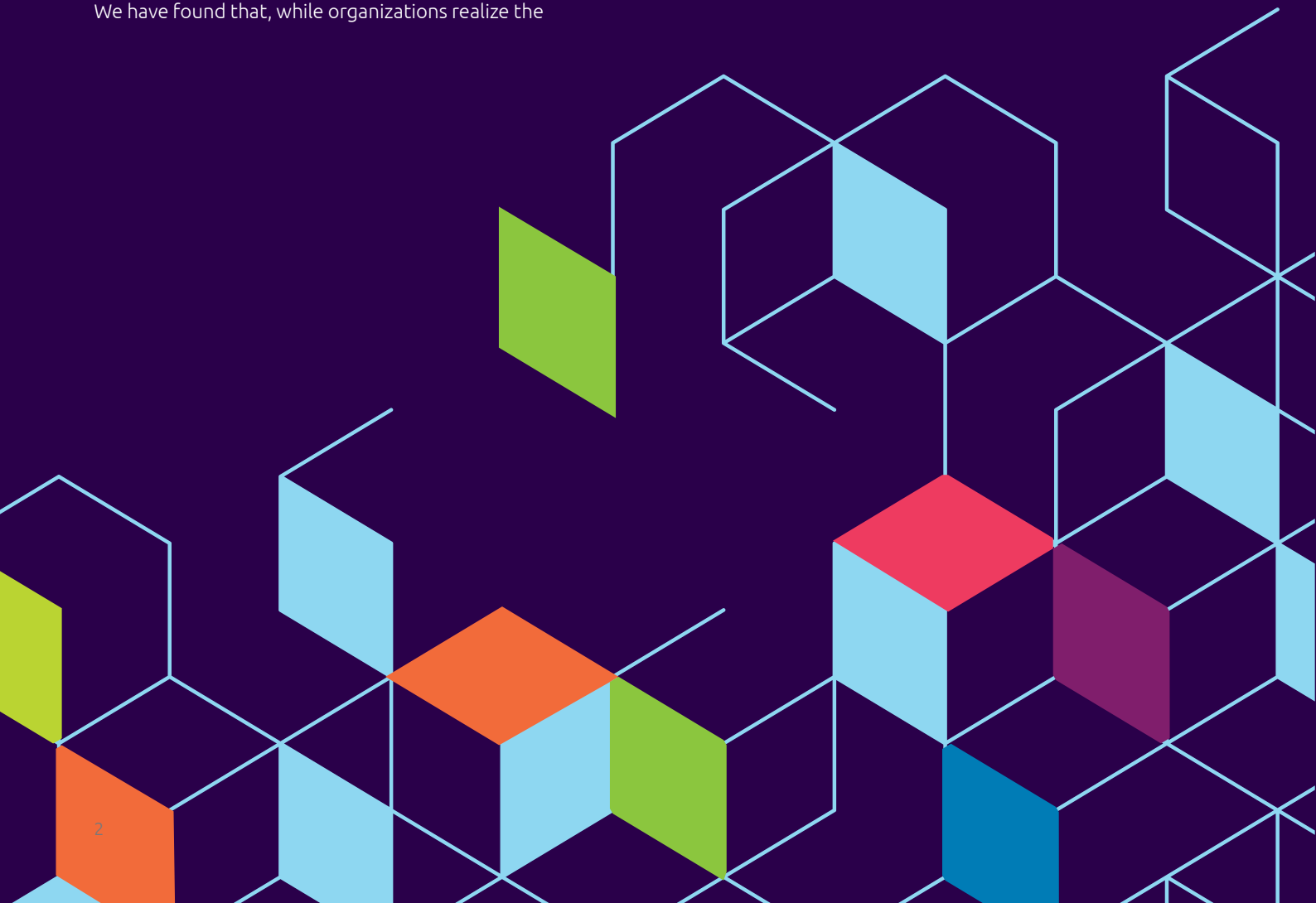
Business leaders recognize the importance of supply chain digitization. Digital supply chain and logistics automation is the top funding priority for businesses worldwide, with investments in transformation reaching $93 billion in 2018.[1] The worldwide revenue of supply chain management software organizations crossed $12 billion in 2017, with growth running at 13.9% for 2016–17.[2]

But, are organizations able to turn this significant opportunity into reality and deliver a return on this significant investment? We have found that, while organizations realize the importance of investing in supply chain digitization, they are lacking one crucial ingredient – strategic focus. This absence of focus is preventing most organizations from scaling up their digital initiatives.

Our research focuses on the following areas:

1. The strategic importance of supply chain digitization

2. How successful organizations focus only on strategic initiatives and deploy them at scale

3. A shortlist of key use cases that can help focus organizations' efforts and investment

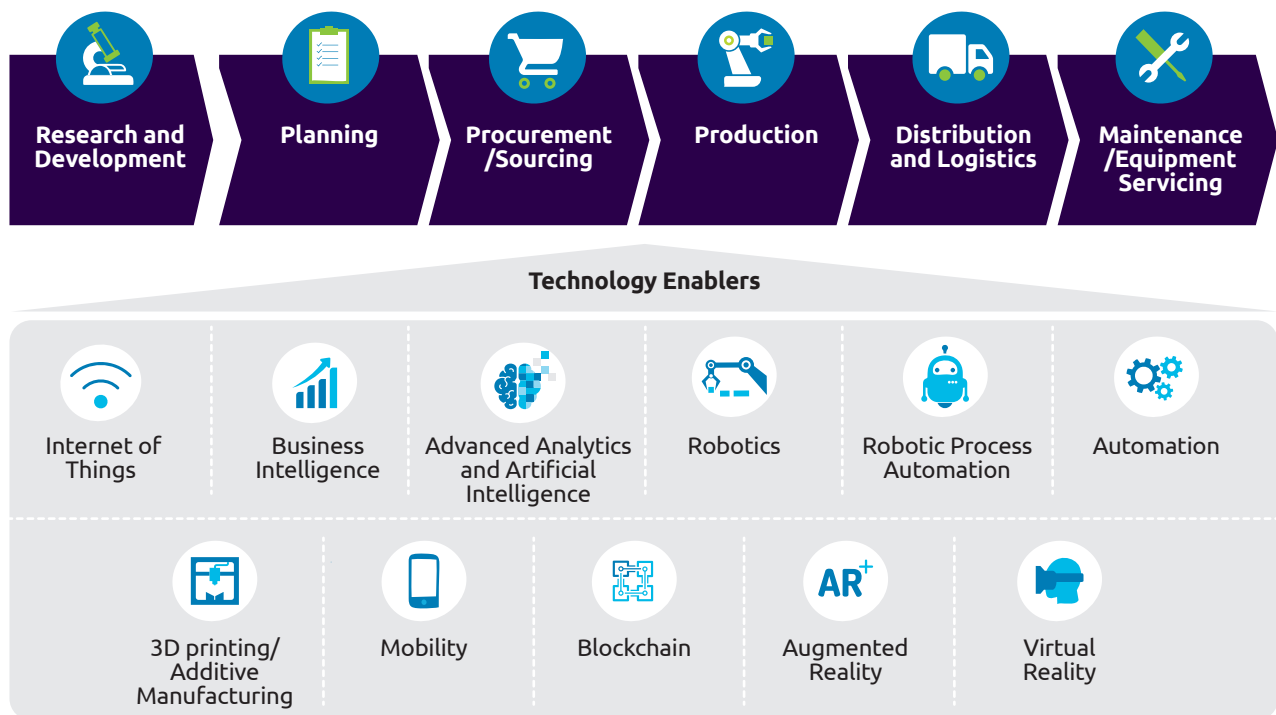4. Key recommendations for a successful supply chain digitization.

What are digital supply chain initiatives?

Digital supply chain initiatives use digital technologies to optimize operations across the entire supply chain by enabling connectivity, data management, insights, and smart automation. When we refer to digitization of supply chain, we refer to both:

- Taking a process or task that is performed manually or offline today and delivering it more efficiently with digital tools
- Using digital processes and data to make something more effective and consumer centric.

Figure 1. Initiatives for digital supply chain

Research and Development → Planning → Procurement/Sourcing → Production → Distribution and Logistics → Maintenance/Equipment Servicing

Technology Enablers

Internet of Things | Business Intelligence | Advanced Analytics and Artificial Intelligence | Robotics | Robotic Process Automation | Automation

3D printing/Additive Manufacturing | Mobility | Blockchain | Augmented Reality | Virtual Reality

Source: Capgemini Research Institute.

The benefits of supply chain digitization can be wide-ranging: cost savings, improved customer satisfaction, or even the launch of an entirely new business model. For example, Amazon is looking to roll out its drone-based "prime air" program to deliver customer shipments within 30 minutes. This will reduce the operational costs of last-mile deliveries and improve customer satisfaction. Moreover, it will also open up opportunities for new business models – for example, charging fees to customers for this sub-30-minute delivery or letting other retailers pay to use prime air's infrastructure.

The strategic importance of supply chain digitization

Nearly two-thirds (63%) of the organizations we surveyed say that their management realizes that supply chain digitization is a process that is continuous and takes a long time. Boeing's supply chain provides an illustration of why so many recognize the complexity involved in digitizing an organization's supply chain. Its worldwide manufacturing facilities receive around three million parts daily from some 5,400 suppliers.[3]

One in two organizations say supply chain digitization is one of their top three priorities at an organization level

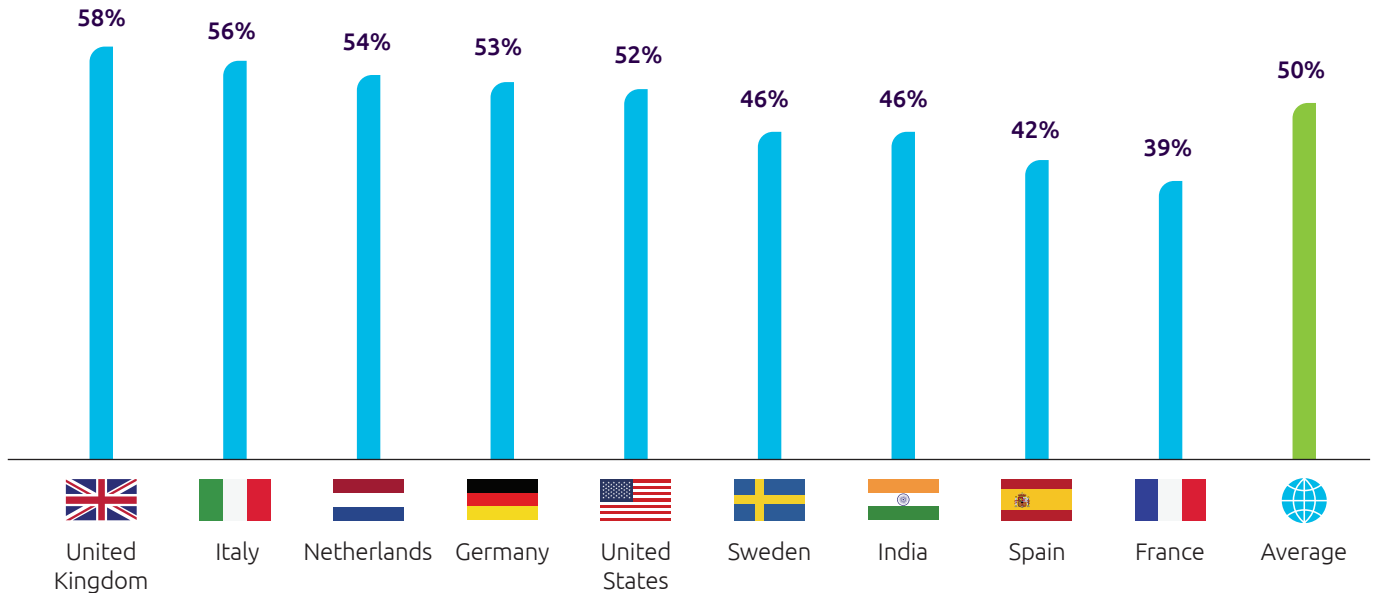Despite the complexity, supply chain digitization is at the top of many organizations' list of strategic priorities. Half of the organizations we surveyed describe it as a top-three focus area (see Figure 2).

Figure 2. **Prioritization of supply chain across sectors and geographies**

Supply chain digitization is one of the top three organizational priorities - by industry

Manufacturing	Consumer Products	Retail	Average
53%	49%	47%	50%

Source: Capgemini Research Institute, Digital Supply Chain Survey; April–May 2018, N=1,001 organizations.

Supply chain digitization is one of the top three organizational priorities - by countries

58%	56%	54%	53%	52%	46%	46%	42%	39%	50%
United Kingdom	Italy	Netherlands	Germany	United States	Sweden	India	Spain	France	Average

Rob Burnett, the CIO of Global Supply Chain & Engineering at GE Transportation, explains how senior management is fully behind their efforts. *"Our management was a huge proponent of investing in the digital technologies for supply chain and that really drives things,"* he says. *"Instead of treating our* *factories or shop floors as cost centers, we use technology coupled with lean manufacturing to improve productivity and quality. It also enables us to do analytics, which was previously impossible because of missing or inaccurate data."*[4]

"

Our management was a huge proponent of investing in the digital technologies for supply chain and that really drives things."
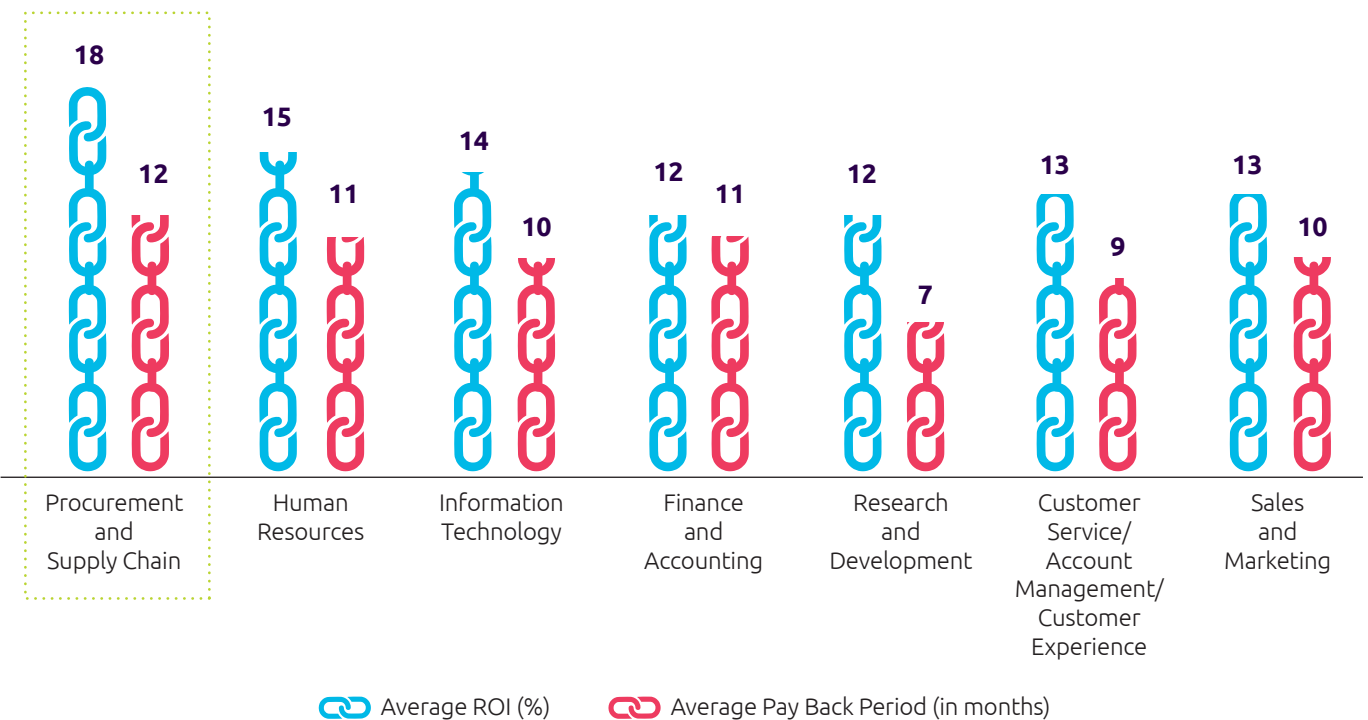
Rob Burnett
CIO of Global Supply Chain & Engineering, GE Transportation

Supply chain initiatives deliver the highest returns compared to other functions

The size of the prize explains why supply chain is one of the top priorities for organizations. Our recent research on automation shows, for example, that automation initiatives in procurement and supply chain functions deliver the highest returns compared to other functions. We found a ROI of 18% for supply chain, three percentage points more than for Human Resources, and four percentage points more than IT (see Figure 3).[5]

Average ROI (%)   Average Pay Back Period (in months)

	Procurement and Supply Chain	Human Resources	Information Technology	Finance and Accounting	Research and Development	Customer Service/ Account Management/ Customer Experience	Sales and Marketing
Average ROI (%)	18	15	14	12	12	13	13
Average Pay Back Period (in months)	12	11	10	11	7	9	10

According to an article in the Sloan Management Review by Professor Fraser Johnson and Professor Emeritus Michiel R. Leenders of the Ivey School of Business, University of Western Ontario: *"Supply [procurement] presents a fertile area for cost improvement efforts, and most organizations expect it to deliver significant cost savings and profit improvements ... in our experience, supply [procurement] savings tend to be understated more often than they are overstated. Most chief supply officers only report those savings that can be easily substantiated. At almost every organization in our study, cost savings were measured by year-over-year price reductions, frequently referred to as 'hard savings.'"[6]*
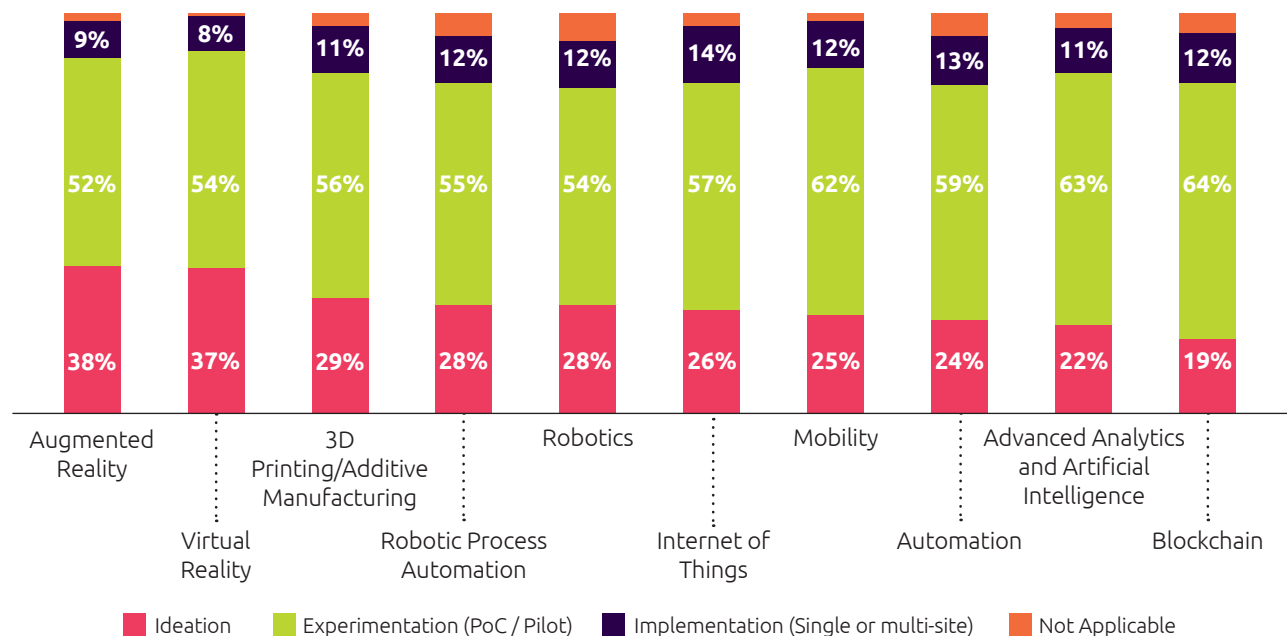
What new technologies are supply chain organizations deploying?

Digital technologies help organizations solve various issues and even enable new opportunities. As we set out earlier in "What are digital supply chain initiatives?," there are a range of technologies impacting various parts of the value chain. Each of these technologies finds applications across multiple use cases.

Figure 4 provides a snapshot on the adoption of these various technologies and the ability of organizations to scale these technologies to implementation. As we can see, organizations are not able to take these projects to scale – almost all of these technologies are at a nascent stage of implementation.
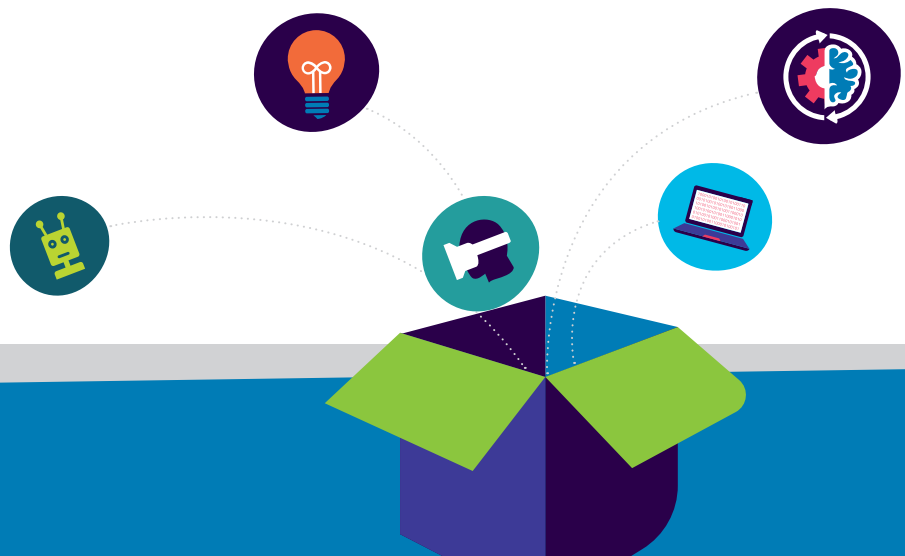
Figure 4. Adoption of digital technologies is quite low at single or multi-site deployment levels

	Augmented Reality	Virtual Reality	3D Printing/Additive Manufacturing	Robotic Process Automation	Robotics	Internet of Things	Mobility	Automation	Advanced Analytics and Artificial Intelligence	Blockchain
Implementation (Single or multi-site)	9%	8%	11%	12%	12%	14%	12%	13%	11%	12%
Experimentation (PoC / Pilot)	52%	54%	56%	55%	54%	57%	62%	59%	63%	64%
Ideation	38%	37%	29%	28%	28%	26%	25%	24%	22%	19%

Legend: ■ Ideation ■ Experimentation (PoC / Pilot) ■ Implementation (Single or multi-site) ■ Not Applicable

*Experimentation includes technologies in proof of concept / pilot stage

Implementation includes technologies being deployed first time or at-scale

Source: Capgemini Research Institute, Digital Supply Chain Survey; April–May 2018, N=1001 organizations, sorted on ideation.

i. Internet of Things and automation are the leading technologies deployed at one or more sites at scale in the supply chain

Rogue Ale – a brewery based in Newport, Oregon – had a critical supply chain issue. The hops it needs to brew its beers have to be delivered from their farms to their breweries within twelve hours. Temperature and humidity also play a considerable role during transportation of the crop. Rogue Ale implemented an IoT-based solution to develop an efficient tracking solution and a reliable transport mode. Sensors track and collect temperature and humidity levels throughout the journey, while the shipments are tracked via GPS. This helps deliver product quality, manage risk, and ensure supply.[7]

Faurecia – an automotive Tier 1 supplier - utilized automation as a key pillar for its Industry 4.0 initiative. Its Columbus factory at Indiana has production equipment and material handling systems which are networked together allowing continuous data flow. A key feature of the plant is the automation of material handling systems, which comprises 30 automated guided vehicles working alongside 17 three-axis robots. This enables loading and unloading and intralogistics of almost 4000 storage locations and can operate 24x7.[8]

ii. Blockchain, advanced analytics and artificial intelligence are around the corner when it comes to large-scale implementation

There is an increasing consumer awareness on sustainability particularly for food items. A London based NGO utilized blockchain to develop a "catch-to-consumer" tracking platform to ensure transparency and accountability throughout the supply chain. Fishing crew attach an RFID to the fish, and the information is then added to a blockchain ledger creating a tamper-proof trail. This can track the fish throughout the value chain from catch to canner and on to the consumer.[9]

AI and advanced analytics can play a significant role in supply chains and can deliver a substantial payoff. As Figure 4 shows, organizations are testing a combination of these at great levels (63%), next only to blockchain. This is driven in particular by the manufacturing and consumer product industries, with use cases such as demand/supply planning and predictive maintenance. Cisco, which has a highly diverse global supply chain with more than 300 product families, leverages AI that draws on geographic information systems to optimize its customer service delivery operations, such as customer-to-service-depot, around the world. The system along with predictive analytics enables them to deliver technical services and distribute spare part inventory more effectively.[10]
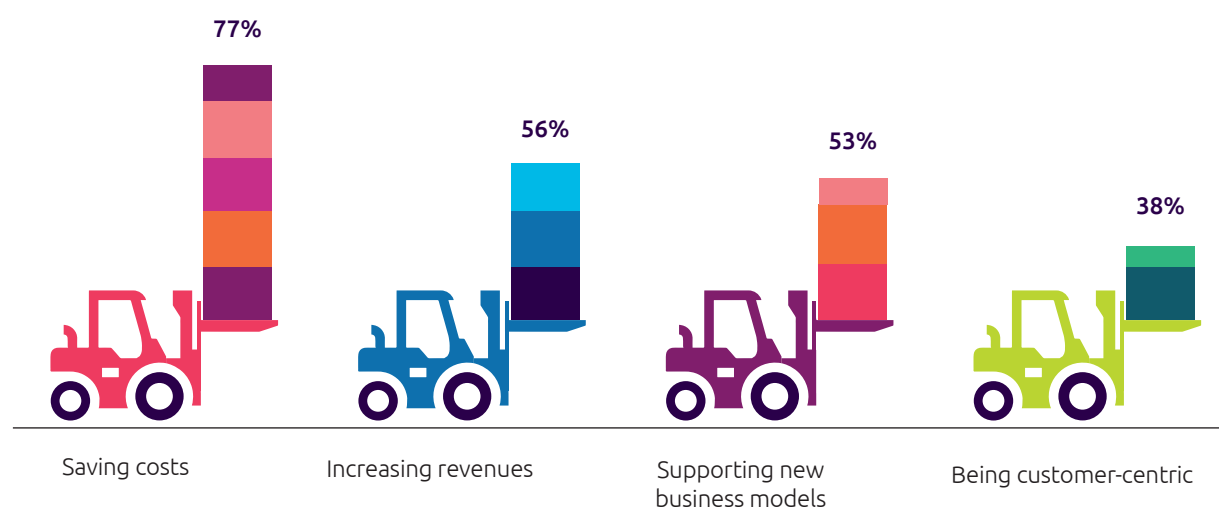
What drives investments in supply chain digitization?

For most organizations (77%), saving costs is the main driver for investing in digital supply chain initiatives (see Figure 5).

Figure 5. Four out of five organizations report cost saving as the key driver of their supply chain investments

77%	56%	53%	38%
Saving costs	Increasing revenues	Supporting new business models	Being customer-centric

Source: Capgemini Research Institute, Digital Supply Chain Survey; April–May 2018, N=1,001 organizations.

In addition to cost gains, supply chains can help deliver a better customer experience. However, less than two out of five organizations make supply chain investments with the aim of becoming more customer centric. This means that many organizations are failing to seize the opportunity to make their supply chains more consumer driven and agile.

Laura J. Alber, CEO, president, and director of Williams-Sonoma, Inc., a US-based consumer retail company, outlines why customer focus is a major driver for their organization. *"…Our supply chain remains a primary focus for us and we are continuing to invest in those initiatives that directly improve our customers' experience and value perception and that position us even further ahead of the competition,"* she says. *"…..We'll continue to prioritize these customer-centric initiatives as our supply chain is a competitive advantage for us and a critical component of the customer experience."*[11] Supply chains are becoming more consumer driven and organizations should look at ways to make their supply chains more agile. Nearly half of the organizations we surveyed mentioned that they are building manufacturing footprint closer to their consumer markets.

A US-based pharma manufacturer, is using predictive analytics to enhance the customer experience during order fulfillment without exceeding its inventory target levels. The solution helped improve demand planning accuracy by introducing exception-based forecasting. Improving the quality of master data, and increased collaboration in key markets, provided a more accurate view of customer needs and resulted in a more precise forecast. This has resulted in a significant increase in forecast accuracy (up to 15%) across product lines.

Successful organizations focus on key strategic digital initiatives and deploy them at scale

Organizations seem to be working on too many projects simultaneously

Enthusiasm for digital technologies is resulting in organizations embarking on multiple initiatives simultaneously. Our study shows that, on average, organizations have 10 digital supply chain projects in ideation, 11 in proof of concept and eight at pilot level (see Figure 6). This totals 29 projects at the pre-deployment stage and illustrates how organizations are unable to trim the number of initiatives as they move forward.

This approach is not ideal. The organizations that are successful start with a large number of ideas and eventually choose a handful that best address their strategic requirements and funnel out the rest. A tier-one European automotive supplier followed this approach while transforming its production and supply chain. *"We started with 200 project proposals and 42 proofs of concept, which we reviewed with great care to understand what value could be extracted from them,"* says a top executive, leading the program. *"From there, we decided to focus on five main initiatives."*[12]

Figure 6. Organizations have close to 30 projects in ideation, PoC or pilot

Ideation	10
Proof of concept	11
Pilot	8

Source: Capgemini Research Institute, Digital Supply Chain Survey; April–May 2018, N=501 organizations.

29
Average number of projects in ideation, PoC or pilot phases"

While experimenting with new technologies is necessary, an unfocused approach creates risk and diverts investment and resources from what is strategically important.

Apple's CEO, Tim Cook, who was previously the tech giant's chief procurement officer, and led the initiative to make Apple's supply chain lean and agile, believes in the power of saying no. He believes that this is necessary to remain focused on key strategic initiatives. *"We say no to good ideas every day,"* he explains. *"We say no to great ideas in order to keep the amount of things we focus on very small in number, so that we can put enormous energy behind the ones we do choose. It's not just saying yes to the right products, it's saying no to many products that are good ideas, but just not nearly as good as other ones."*[13]
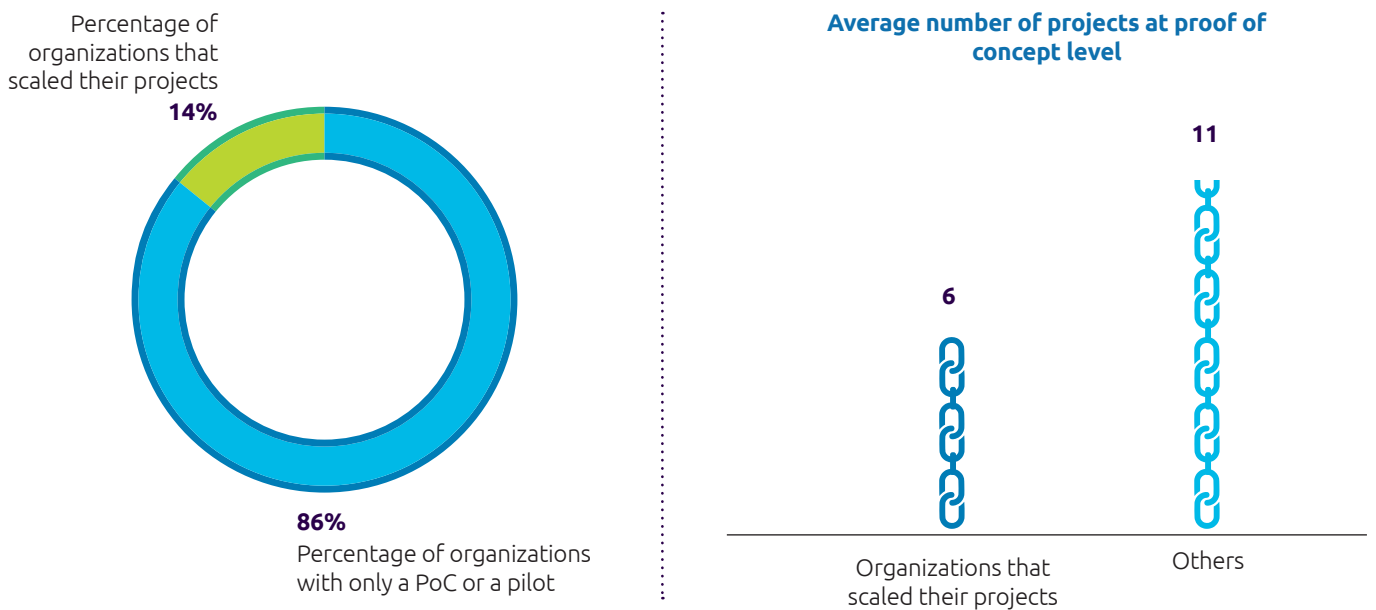
In order to strike a balance between experimentation and focus, organizations need to follow a systematic approach. They need to explore use cases and define each business case. The selected use cases will need to be tested to corroborate their feasibility and benefits, allowing the organization to identify the most compelling cases and scale those up.

Because most lack focus, only one in seven organizations successfully scales initiatives from a pilot or PoC stage

In our research, we found that only 14% of organizations are currently able to scale at least one of their supply chain digital initiatives to multi-site deployment or full-scale deployment (see Figure 7). The vast majority – 86% – are stuck at either PoC or pilot stage. We also found that those organizations that were able to scale up their digital initiatives have, on average, six proofs of concept running at one time. In contrast, those who fail to scale have, on average, eleven proofs of concept running.

Figure 7. Organizations with PoC or pilot initiatives vs. organizations with implementation at scale

Percentage of organizations that scaled their projects
14%

86%
Percentage of organizations with only a PoC or a pilot

Average number of projects at proof of concept level

11

6

Organizations that scaled their projects

Others

Source: Capgemini Research Institute, Digital Supply Chain Survey; April–May 2018, N=501 organizations.
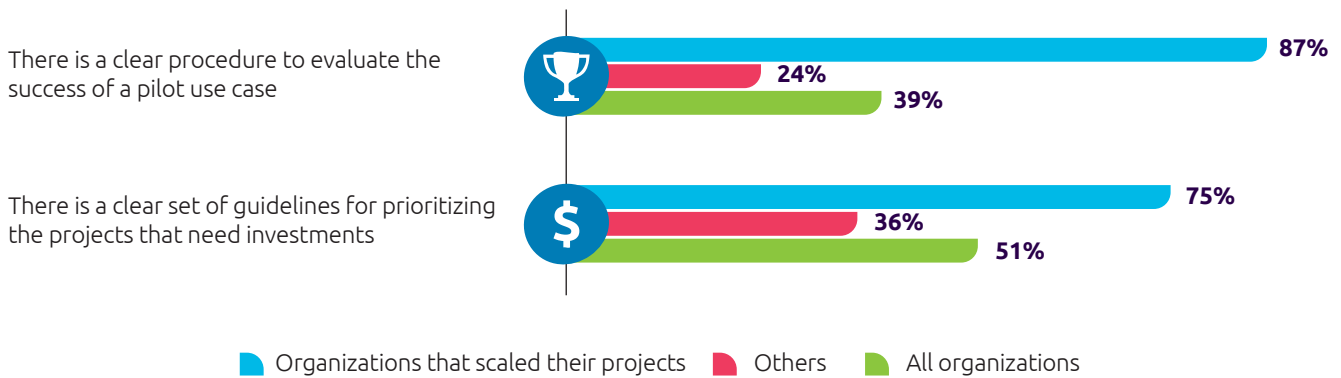
This once again illustrates how important it is for organizations to remain focused on what they are pursuing. However, we found that many lack the frameworks to identify key strategic initiatives. Our research showed that:

- More than 60% of organizations lack clear procedures to evaluate the success of a pilot use case.

- Half do not have any guidelines to prioritize the projects that need investment.

In contrast, many of the organizations that have successfully scaled have frameworks in place to identify strategic projects. For example, 87% told us that they have a clear procedure for evaluating the success of a pilot use case (see Figure 8).

Figure 8. **Percentage of organizations with a framework to identify strategic projects**

There is a clear procedure to evaluate the success of a pilot use case
- 87%
- 24%
- 39%

There is a clear set of guidelines for prioritizing the projects that need investments
- 75%
- 36%
- 51%

Organizations that scaled their projects   Others   All organizations

Source: Capgemini Research Institute, Digital Supply Chain Survey; April–May 2018, N=501 All organizations; N=68 organizations that scale.

Our study also shows that frameworks can help the organization focus on wider business objectives, such as driving customer centricity or using the supply chain to grow revenues. For example:
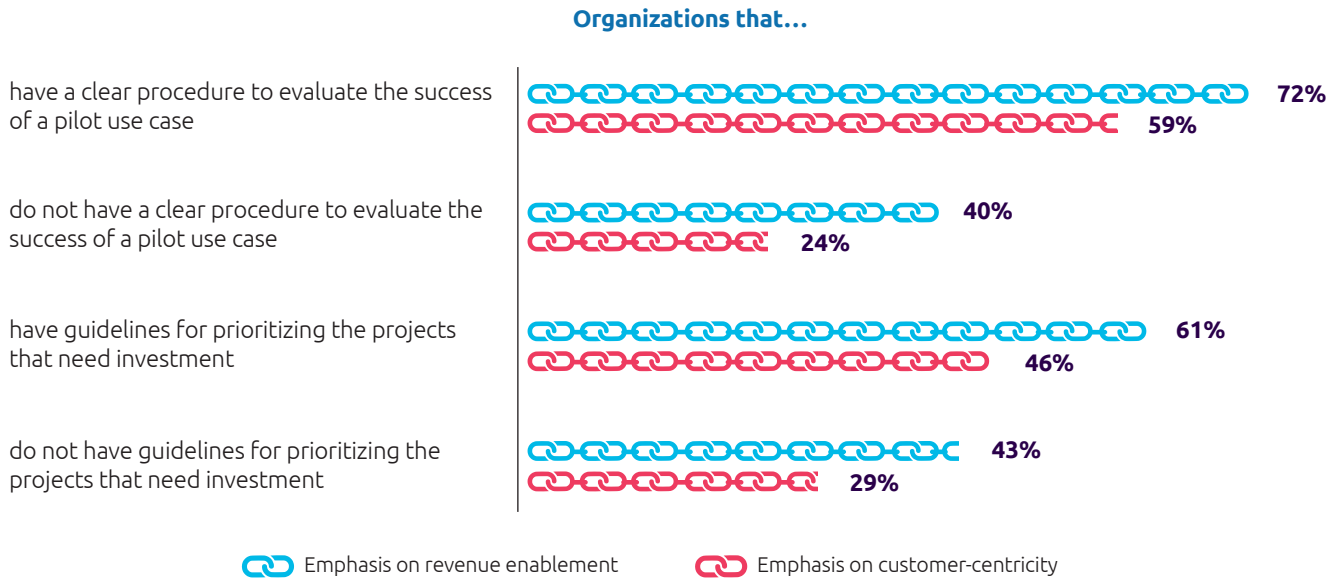
- 59% of the organizations that have a framework for evaluating the success of pilot use cases told us that customer centricity is a key objective of their digital supply chain initiatives. However, this drops to 24% for organizations where a framework is lacking (see Figure 9).

- 61% of organizations that have a clear set of guidelines for prioritizing projects say that their digital supply chain

projects contribute to revenue uplift. This drops to 43% for companies where such a framework is absent.

"You have to identify where you want to play and how you want to play before going for transformation initiatives," says the managing director of an American medical equipment manufacturer. *"A lot of organizations don't look that far up front and start taking small steps in their transformation. Then, they transform themselves into something they didn't want to be."*

87%
Organizations that scale their supply chain initiatives have a clear procedure for evaluating a pilot use case compared to 24% of others

Organizations that…

have a clear procedure to evaluate the success of a pilot use case
72%
59%

do not have a clear procedure to evaluate the success of a pilot use case
40%
24%

have guidelines for prioritizing the projects that need investment
61%
46%

do not have guidelines for prioritizing the projects that need investment
43%
29%

Emphasis on revenue enablement
Emphasis on customer-centricity

Source: Capgemini Research Institute, Digital Supply Chain Survey; April–May 2018, N=1,001 organizations.

Successful organizations are selective about what to implement

Organizations that have been successful in digitizing their supply chains focus only on those initiatives that are of pressing strategic importance. They do this by involving their top management and allocating significant investment capital to drive progress. This approach is illustrated in the case examples below:

Inditex: As the owner of fast fashion brands Zara and Massimo Dutti, Inditex must be able to forecast demand for fashion trends and cater to that demand by quickly introducing new lines. Its CEO, Pablo Isla, instructed his engineers to find a low-cost mechanism to track every garment from warehouse to point of sales.[14] Inditex's engineers came up with a solution to tag every garment with an RFID microchip that enabled the company to track the products' movements from warehouses to points of sales and monitor inventory and sales data at stores. Inditex invested more than one billion euros over a period of four years to scale up the deployment of the solution.[15] Leveraging the data gathered by RFID technologies, Inditex supplies orders to stores within two to 48 hours[16] and their inventory management is now 80% faster.[17] Moreover, real-time tracking of sales data and customer feedback optimizes the production and fine tunes the designing of clothes.

Colgate-Palmolive: The American CPG giant's strategic goals were profitable growth and operational excellence. In order to achieve these goals, Colgate-Palmolive focused on leveraging technologies to incorporate advanced analytics and automation in its supply chain. *"Technology is what can arm supply chain decision makers with the advanced analytical capabilities that today's supply chain complexity necessitates,"* Linda Topping, former chief procurement officer at Colgate-Palmolive remarked at the Gartner Supply Chain Executive conference in 2014 highlighting the importance of technology and advanced analytics in Colgate-Palmolive's supply chain vision.[18] Colgate-Palmolive's board approved the reinvestment of funds from the sale of a business unit into supply chain innovation and oversaw the implementation plan.[19] For analytics, the company implemented a SAP HANA database for deep analysis and decision making. This analytics infrastructure is already supporting factories in KPI analysis and problem solving, from managers and continuous improvement engineers to shop floor technicians and operators. Colgate-Palmolive has been leveraging collaborative robots, auto palletizers, and RFID technologies to track pallets to address the requirement of automation. The improved supply chain has reduced operating costs and enhanced the asset utilization rate in its factories by 10%.[20]
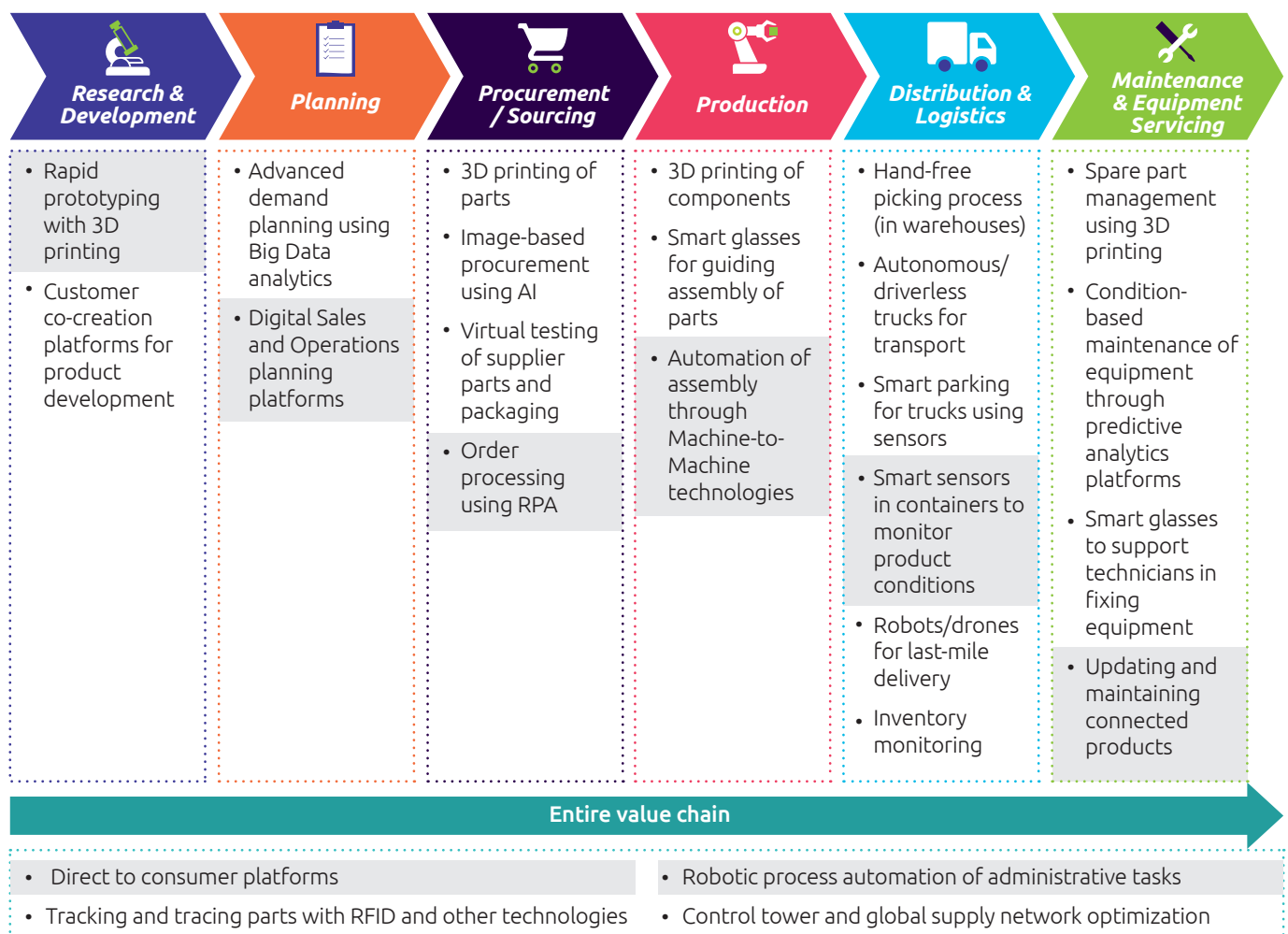
The key use cases that can help focus organizations' efforts and investments

As organizations experiment with a wide variety of digital supply chain projects but struggle to scale them up, we have shortlisted a widely used set of use cases that can become key strategic wins. Taking a long list of 25 use cases, we have assessed them against two criteria – ease of implementation and the benefits derived – to draw up the shortlist.

Figure 10 shows the entire 25 use cases along with the shortlisted use cases and where they feature in the value chain. Figure 10b shows the same list as a heat map along with the overall recommendation for each. This shortlist of use cases provides a guide to organizations struggling to prioritize as these use cases have delivered historic benefits while being easy to implement. The combination of these two factors makes them quick wins. However, organizations need to see which of the use cases tie in with their enterprise goals. Evaluating the applications and selecting use cases requires a supply chain strategy while balancing the need for moving quickly on the proof of concept implementations.

Figure 10. Use cases across the value chain and recommended use cases in each part of the value chain

Research & Development	Planning	Procurement / Sourcing	Production	Distribution & Logistics	Maintenance & Equipment Servicing
• Rapid prototyping with 3D printing • Customer co-creation platforms for product development	• Advanced demand planning using Big Data analytics • Digital Sales and Operations planning platforms	• 3D printing of parts • Image-based procurement using AI • Virtual testing of supplier parts and packaging • Order processing using RPA	• 3D printing of components • Smart glasses for guiding assembly of parts • Automation of assembly through Machine-to-Machine technologies	• Hand-free picking process (in warehouses) • Autonomous/ driverless trucks for transport • Smart parking for trucks using sensors • Smart sensors in containers to monitor product conditions • Robots/drones for last-mile delivery • Inventory monitoring	• Spare part management using 3D printing • Condition-based maintenance of equipment through predictive analytics platforms • Smart glasses to support technicians in fixing equipment • Updating and maintaining connected products

Entire value chain

- Direct to consumer platforms
- Tracking and tracing parts with RFID and other technologies
- Robotic process automation of administrative tasks
- Control tower and global supply network optimization

*Recommended use case(s) in each part of the value chain are highlighted.

Source: Capgemini Research Institute, Digital Supply Chain Survey; April–May 2018, N=501 organizations.

Figure 10b. Recommendation index for use cases across the value chain

Value Chain	Use Case	Recommendation index
Research and Development	Rapid prototyping with 3D printing	
	Customer co-creation platforms for product development	
Planning	Advanced demand planning using Big Data analytics	
	Digital Sales and Operations planning platforms	
Procurement/ Sourcing	3D printing of parts	
	Image-based procurement using AI	
	Virtual testing of supplier parts	
	Order processing using RPA	
Production	3D printing of components	
	Smart glasses for guiding assembly of parts	
	Automation of assembly through Machine-to-Machine technologies	
Distribution and Logistics	Hand-free picking process (in warehouses)	
	Autonomous/driverless trucks for transport	
	Smart parking for trucks using sensors	
	Smart sensors in containers to monitor product conditions	
	Robots/drones for last-mile delivery	
	Inventory monitoring	
Maintenance and Equipment Servicing	Spare part management using 3D printing	
	Condition based maintenance of equipment through predictive analytics platforms	
	Smart glasses to support technicians in fixing equipment	
	Updating and maintaining connected products	
Entire Value Chain	Direct to consumer platforms	
	Tracking and tracing parts with RFID and other technologies	
	Robotic process automation of administrative tasks	
	Control tower and global supply network optimization	

Low ── High

Recommended use case(s) in each part of the value chain are highlighted in green.

Source: Capgemini Research Institute, Digital Supply Chain Survey; April–May 2018, N=501 organizations, expert opinions.

Below, we look at each of these shortlisted applications:

Research and Development
Rapid prototyping with 3D printing

Ford Motors has made significant use of 3D printing to develop prototypes. Building prototypes through the traditional die casting requires six to eight weeks and an entire prototype takes several months and up to hundreds of thousands of dollars. This process is based on Ford Freeform Fabrication Technology (F3T), a patented manufacturing process developed at the Ford Research and Innovation Center.[21]

Planning
Digital sales and operations planning (S&OP) platform

A global consumer product manufacturer and a well-known leader in the supply chain, has been an early adopter of digital technology. It has deployed its highly-automated S&OP platform to incorporate systemic environment monitoring and response planning functions. This has brought considerable dividends in its logistic functions. For its European supply chain, it has reduced 20% of its trucking transportation, and achieved €1.1 billion in savings and a 40% reduction in capital expenditure.[22]

Procurement/sourcing
Order processing using RPA

Coca-Cola Philippines, which has to process 24,000 invoices from its 2,000 active partners nationwide in a month, has automated this massive task. Using RPA, invoices now are automatically captured and sorted according to pre-specified rules. Relevant information is extracted and matched to purchase order and goods receipt. The verified invoice is now automatically posted for payment and exceptions are routed to a workflow where assigned personnel are alerted to take actions on flagged entries. The initial phase has improved goods receipts on time to 99% in less than 18 months.[23] RPA as seen in Figure 10 is one of the suggested use cases even for the other parts of value chain, not just in procurement.

Production
Automation of assembly using the machine-to-machine technologies

Siemens, one of the leading manufacturers of Programmable Logic Controllers (PLC), automated its semiconductor fabrication factory in Amberg, Germany via machine to machine technologies. This factory has 75% of its value chain automated and maintains a production quality of 99.99885% while producing 12 million units a year. The factory is an example of a digital enterprise platform where product codes tell production machines what requirements they have and what production steps or processes must be undertaken.[24]

Distribution and logistics
Smart sensors in containers to monitor product conditions

Capgemini is delivering a proof of concept for a pharmaceutical company, deploying a "smart container" management system based on blockchain technology. Smart containers are transportation containers equipped with sensors and transmission technologies. This basic IoT solution transmits data from the sensors to a blockchain. The combination of real-time data about container conditions and tamper-proof storage of that data on a blockchain is delivering higher levels of transparency within the supply chain processes involved.

Maintenance and equipment servicing
Updating and maintaining connected products

Predictive maintenance and OTA (over-the-air) updates can greatly improve the consumer experience. Tesla Motors' OTA update system ensures consumers have the latest features and upgrades without the need to visit dealerships or service centres.[25] After Consumer Reports, an American magazine that publishes research on product testing and consumer research, announced that it would not recommend Tesla's Model 3 based on its braking performance, Tesla responded with an OTA update.[26] It improved braking performance within days – in stark contrast to the traditional method of vehicle recalls, which is time-consuming and costly.

Direct to consumer platforms

Nike is a good example of an organization that has used digital transformation to develop a unique customer-centric approach for developing products. Nike's program – "Consumer Direct Offense" – is designed to deliver more speed, innovation, and personalization to its product line. Its stated aim is to "Triple Double" (i.e., 2X Innovation, 2X Speed and 2X Direct).

The end goal was to build a closer relationship with its customers. To achieve this, Nike had to bypass its traditional retail partners and start selling products directly through its own retail stores, e-commerce website and app ("Nike Direct"). Nike's financial reporting shows its sales are now split between Nike Direct and wholesalers, showcasing the success of its transformation program.[27]

How can organizations successfully scale their supply chain initiatives?

To drive value from supply chain digitization, we believe three broad areas are critical, which we characterize as strategize and plan, build, and enable (see Figure 11).

Figure 11. Considerations for digitizing supply chain

Strategize & plan
- Advocate digitization from the top
- Align the supply chain vision with the enterprise vision

Supply chain digitization

Build an ecosystem to support
- Onboard your partners to realize the maximum benefits
- Foster collaboration across functions
- Work toward establishing a data-driven organization

Enable the digitization
- Drive a customer-centric mindset in supply chain
- Attract, retain, and upskill supply chain employees

Source: Capgemini Research Institute.

Strategize and plan for the digitization of your supply chain

Advocate digitization from the top

We found that 57% of executives in our research feel that leadership's lack of commitment is a key challenge. Digitizing the supply chain is a lengthy process and affects multiple functions, such as planning, procurement, IT, and HR, among others. The program, therefore, cannot be a true success with just one business unit driving it, and needs championing by senior leadership. Bastiaan Westhoff, global RCS & Wayside supply chain director at Bombardier, an aerospace and transportation company, underlines the importance of top management sponsorship of the program, especially large-scale initiatives. *"The most difficult part in such a program is the change management,"* he says. *"We needed to get buy-in from the regions. To get the buy-in, you need to reach out to the people directly impacted and you need to ensure you have the full commitment from top management. Without the buy-in you should not even start."[28]* Senior leadership should also guide the program leaders on what is critical by setting goals for the digitization. If a supply chain needs to be more consumer centric, the objective and the drive to deliver will need to come from the senior leadership.

Align the supply chain vision with the enterprise vision

Our research has shown that organizations that are able to scale their initiatives show a greater level of alignment, both on vision and on the investments needed for the supply chain (see Figure 12).

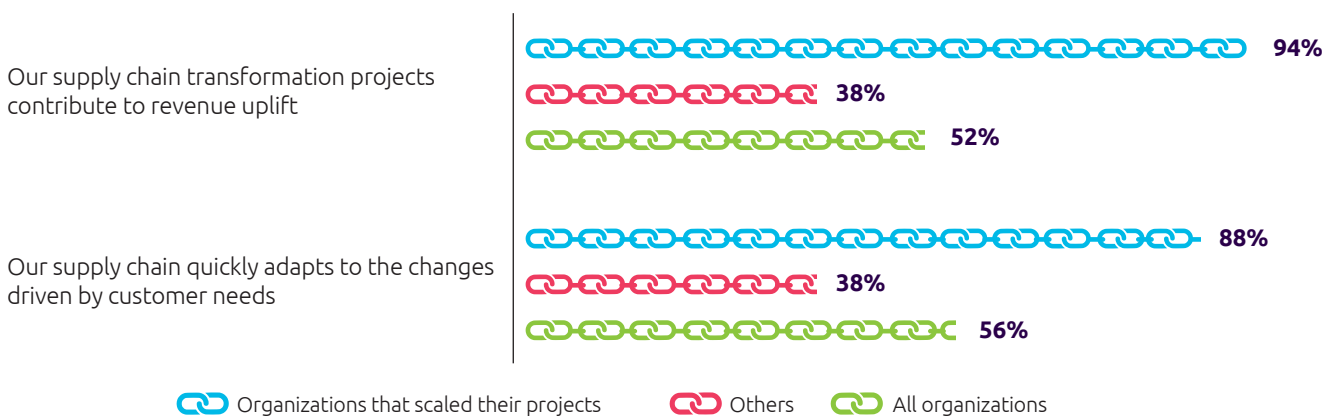**Figure 12.** **Organizations that scale show a higher alignment between their supply chain executives and other executives**

We have a high alignment between our supply chain executives and other senior executives...

	On the supply chain vision for the organization	On initiatives needed for aligning supply chain with the business goals	On investments needed for transforming the supply chain
Organizations that scaled their projects	94%	85%	82%
Others	52%	31%	38%
All organizations	66%	41%	55%

This strong alignment could also partly explain why initiatives add to revenue growth:

- Of those organizations that have been able to scale, 94% report that their projects contribute to revenue growth.
- However, for those who have not reached scale, this drops to 38%.

At the same time, 88% of those who achieve scale also say their supply chain is quick to adapt to changing customer needs. This drops to 38% for the others (see Figure 13).

Figure 13. Supply chain in organizations that scale contributes to revenue growth and is also more agile

Our supply chain transformation projects contribute to revenue uplift
- 94%
- 38%
- 52%

Our supply chain quickly adapts to the changes driven by customer needs
- 88%
- 38%
- 56%

Organizations that scaled their projects   Others   All organizations

Source: Capgemini Research Institute, Digital Supply Chain Survey; April–May 2018, N=501 All organizations; N=68 organizations that scale.

Build an ecosystem to support the digitization of your supply chain

Onboard your partners to realize the maximum benefits

As Figure 14 shows, a significant majority of those organizations that scale (78%) say they lack responsiveness from their supply chain partners. At the same time, 91% of them also say they need greater data sharing among partners. Interestingly, this sentiment drops for those that have not successfully scaled. This might reflect the high expectations that those who scale have of a collaborative supply chain.

Strong, collaborative partnerships offer significant opporunites, such as collaborative design (with upstream partners) and collaborative demand planning (with the downstream partners). However, partnerships can be resource intensive. One approach is to collaborate with a smaller segment of critical suppliers and distributors or retailers. For example, distributors could be segmented according to their logistics needs, and suppliers could be segmented based on their willingness to collaborate, their technology infrastructure, their service level agreements, or other factors.[29]

" **88%**
Organizations that scale their supply chain initiatives are able to quickly adapt their supply chain to customer needs

We need greater data sharing across partners to create greater value for all participants

91%

35%

47%

We lack the kind of responsiveness we would like with our partners across the supply chain

78%

44%

55%

Organizations that scaled their projects   Others   All organizations
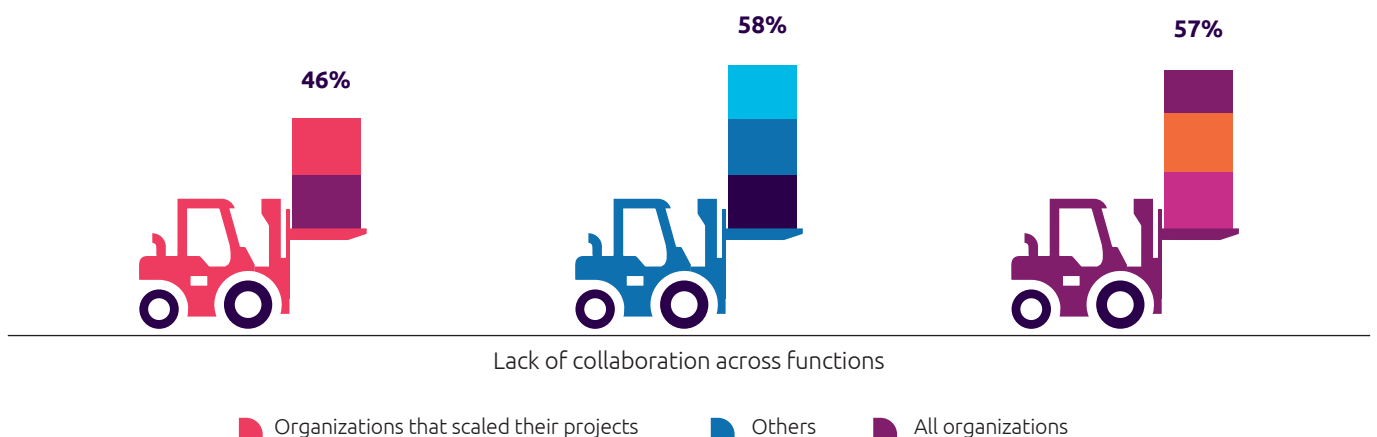
Foster collaboration across functions

Geographic and organizational boundaries can stand in the way of collaboration. It is not uncommon for various supply chain functions – such as procurement and logistics – to be located in different geographies, which can be challenging for effective collaboration. Moreover, since technology and business teams often operate in their own silos, with significant organizational barriers, digital transformation can be a struggle.[30]

More than half of the organizations surveyed reported that the cross-functional collaboration is a roadblock hindering at-scale implementation (see Figure 15). Organizations that scale perform slightly better in cross-functional collaboration, with only 46% finding this to be a challenge. Organizations should encourage an environment that allows cross-functional teams, involving both business and technology, to collaborate and work toward shared goals. Such a collaboration will be successful when:

- At an organization level, there is support from the management and also the required technology tools to enable collaboration
- At an individual level, there is trust among the teams, openness, and communication.[31]

Figure 15. Nearly three-fifths of organizations find lack of collaboration a challenge for scaling up

46%

58%

57%

Lack of collaboration across functions

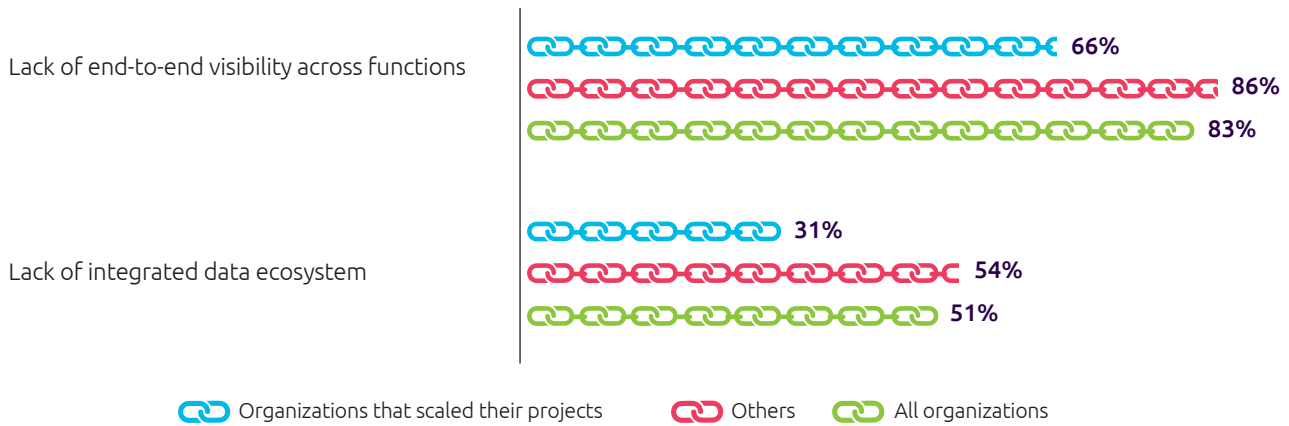Organizations that scaled their projects   Others   All organizations

Work toward establishing a data-driven organization

In our research, 83% of organizations pointed to a lack of end-to-end visibility in their organization as a challenge to reaching scale (see Figure 16). Clear visibility is critical in removing supply chain redundancies and can also improve the customer experience. For example, Brian Kesseler – co-CEO of Tenneco Inc., a US-based automotive company – highlights the importance of data in on-time delivery: *"So the data analytics, the supply chain analytics, and the inventory and order visibility capabilities, the IT systems is a place where we are investing today and more tomorrow to make sure we've got those capabilities built up to serve those markets most efficiently."[32]*

Organizations often struggle without a single version of truth. Availability of accurate data, at the right granularity, lies at the heart of effective data-driven decision making. To accomplish this, organizations should focus on creating and developing a data ecosystem – the infrastructure for capturing data, an understanding of data flow across processes and systems, applications to analyze captured data, policies to govern the access, and security measures to protect this data. For example, supply chain control towers – which are central hubs with the required technology, and processes – capture and use supply chain data and provide enhanced visibility for short- and long-term decision making. They also allow monitoring, measuring and managing transport and inventory movements across the supply chain. This enables real-time control, analytics on cost of every product and collaboration platforms.[33] This sort of visibility and ecosystem, when supplemented by talent with a data-driven mindset, will act as a platform to foster innovation and help supply chain managers reduce inventory, address product shortages, and optimize production.

Figure 16. Majority of organizations cite a lack of end-to-end visibility as a challenge for scaling up

Lack of end-to-end visibility across functions
66%
86%
83%

Lack of integrated data ecosystem
31%
54%
51%

Organizations that scaled their projects   Others   All organizations

Source: Capgemini Research Institute, Digital Supply Chain Survey; April–May 2018, N=501 all organizations; N=68 organizations that scale.

> So the data analytics, the supply chain analytics, and the inventory and order visibility capabilities, the IT systems is a place where we are investing today and more tomorrow to make sure we've got those capabilities built up to serve those markets most efficiently."

Brian Kesseler
Co-CEO of Tenneco Inc.

Enable the digitization of the supply chain

Drive a customer-centric mindset in supply chain

Only 38% of organizations say that customer centricity is a driver of their supply chain digitization compared to the 77% who point to cost optimization.

Driving a customer-centric mindset requires a cultural shift across the whole supply chain organization, from leadership to employees. Without that culture shift, employee resistance can be a significant problem. In one of our recent research reports on organizational culture, professor Deborah Ancona, from the MIT Sloan School of Management, pointed out how employee resistance can affect transformation programs. *"Employees will resist because they still see the old behaviors as critical to their success and central to who they are while seeing the new norms as risky,"* she explains.[34]

There are a number of pragmatic actions that organizations can take to successfully drive a culture shift:

- Align key performance indicators (KPIs) with employees' incentives. For example, tying improvements in cutomer satisfaction scores with incentives for supply chain executives and employees. This can help drive a customer-centric mindset.

- Design new digital KPIs focused on desired behaviors rather than successes or failures.

- Deploy change agents and empower employees to drive a new mindset.

- Measure and monitor the culture change. For example, the number of innovative ideas suggested to drive more customer centricity can help to monitor culture change progress.

Attract, retain, and upskill supply chain employees

According to Peter Cappelli, professor of Management at the Wharton School, *"Failing to manage your company's talent needs is the equivalent of failing to manage your supply chain."*[35]

In our research, over half of respondents (51%) said that lack of talent is one of the key challenges for scaling their supply chain initiatives. Moreover, recent research by DHL has shown that nearly 70% of supply chain professionals list "perceived status of supply chain as a profession" as a key challenge for attracting key talent.[36]

Organizations therefore face a twofold challenge – attracting and retaining talent and upskilling the existing exployees who are accustomed to working on traditional supply chains.

Our research shows that successful organizations use a number of approaches:

- Diversifying their recruitment approach

- Creating an environment that prioritizes and rewards learning

- Charting a clear career development path for employees

- Giving talent the power and influence to implement change[37]

- Creating upskilling programs that are relevant and exciting.[38]

Conclusion

The pace of digital disruption is ever increasing, and organizations are being forced to constantly reinvent themselves. Supply chains have moved from being merely cost centers to being enablers of competitive advantage. Organizations and their leaders today certainly get the criticality of supply chain digitization, but many approaches lack direction and, as a result, fail to scale up effectively. By stretching themselves too thinly across multiple initiatives, organizations are unable to see programs to completion or gain the benefits of scaled adoption. Focus, therefore, is the critical ingredient for achieving success from the next-generation, consumer-driven digital supply chain. Successful organizations will have clear frameworks to identify the right digital initiatives that are aligned with their goals, learn fast from their pilot implementations, and be determined and able to reach scale.

Research methodology

We surveyed supply chain executives from over 1,000 organizations across consumer products, retail, and manufacturing. Eighty percent of these organizations reported revenue of more than US$1 billion in FY 2017. This survey was conducted from April to May 2018. We also interviewed senior supply chain executives.
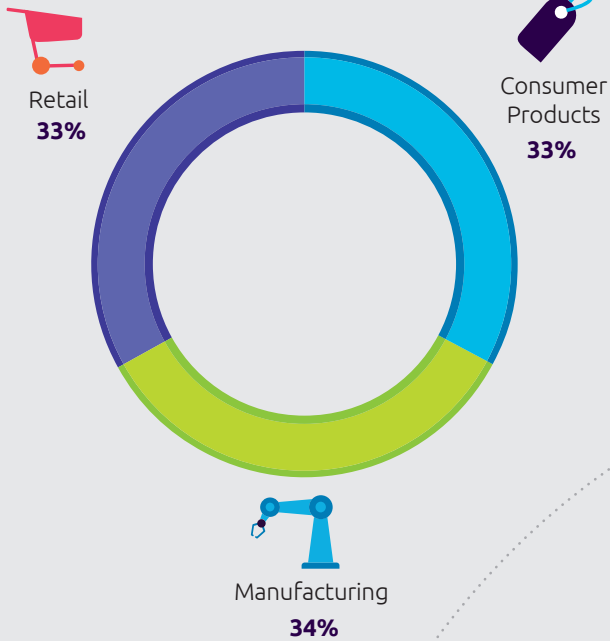
Organizations by location

United States	United Kingdom	France	Germany	India	Netherlands	Sweden	Italy	Spain
20%	14%	13%	13%	10%	10%	10%	5%	5%

Source: Capgemini Research Institute, Digital Supply Chain Survey; April–May 2018, N=1,001 organizations.

Research methodology

Organizations by industry

Retail
33%

Consumer Products
33%

Manufacturing
34%

Source: Capgemini Research Institute, Digital Supply Chain Survey; April–May 2018, N=1,001 organizations.

Organizations by revenue

> =$10 billion
17%

>=$500 million < $1 billion
20%

> =$5 billion < $10 billion
24%

>= $1 billion < $5 billion
39%

Source: Capgemini Research Institute, Digital Supply Chain Survey; April–May 2018, N=1,001 organizations.

Respondents by the level of involvement in supply chain initiatives

I have considerable knowledge on my organization's supply chain activities
16%

I'm leading a supply chain initiative
23%

I have monitored / am currently monitoring supply chain activities
18%

I'm actively involved with supply chain activities
43%

Source: Capgemini Research Institute, Digital Supply Chain Survey; April–May 2018, N=1,001 organizations.

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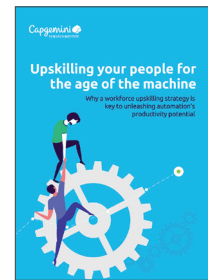# Discover more about our recent research on digital transformation

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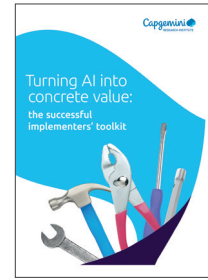
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