

WHITE PAPER

The Future Is Now

Harnessing the power of digitization to drive greater supply chain performance

The digital revolution is here. Advancements in digitization have redefined the shopping experience, fundamentally altering the relationship between businesses and consumers. Companies can no longer overlook the impact of these technologies. Instead, they need to examine how digitization can be leveraged to drive greater revenue, profit and efficiencies across their operations. For companies that are not prepared to harness these technological advancements, the result could be detrimental. With the pace of innovation moving faster than ever before, those that don't adapt are likely to be left behind – and out of business.

Digitization defined

What exactly is digitization? While there are many different definitions, throughout this white paper we'll be referring to digitization as the process of using technology advancements to redefine and reimagine current business practices to create a significant competitive advantage across the enterprise. The impact will primarily be seen in the following three areas.

- **Emergence of new business models:**

As access to the Internet grows, this will mean access to new customers and geographies that were not possible earlier; this is changing how companies should choose to spend their marketing dollars. Powered with big data analytics, enterprises are now doing targeted promotions to maximize the returns on their marketing spend. Even in the medical industry where every ailment used to require a doctor's visit, insurance companies are now experimenting with the idea of conducting virtual consultations for common ailments such as fevers, coughs and colds. Imagine targeted ads for cold medicine appearing in the browser during a virtual consultation based on criteria that the patient had submitted.



- **Redefined business processes:**

The exponential rise in computing power is now allowing businesses to process and interpret massive amounts of data very quickly, which is something that was not possible until recently. Progressive companies are able to take advantage of this and run their business processes more often and faster (going from days to hours in some cases), and as a result, they are able to diagnose needs, cut down or modify inventory, and make their enterprise efforts leaner. Additionally, predictive intelligence is allowing them to adjust supply chain parameters in near real time.

- **Reimagine the user experience:**

As the line between professional and personal worlds continue to blend, there is an increasing need for enterprise users to be able to seamlessly transition between the two without losing context or momentum. The user experience that consumers have come to expect on their mobile devices can now be made available to enterprise users. Users are now demanding a seamless experience across their devices, so that dashboards are accessible and synchronized across all devices, such as laptops, smartphones and tablets. Closing that gap between the digital experience across business and personal applications is essential for customer satisfaction and business success — resulting in revenue gains and consumer loyalty.

With these applications in mind, this white paper will focus on a broad range of technologies and capabilities often considered components of digitization and feature insights derived from the 2016 SCDigest Supply Chain Digitization Benchmark survey of more than 200 professionals.

The promise of digitization

As a result of the exponential growth in computing power over the past 10 years, it is now possible to deploy many of these digitization technologies in a practical way. Advancements in machine learning and analytics can be used to process massive amounts of data in a very short amount of time. Not only can these technologies influence supply chain performance and profitability, but the volumes of data now accessible on consumers' preferences — if leveraged correctly — can create customers for life. Given the potential of digitization to transform the bottom line, it's not surprising that it is top of mind for many executives.

According to the 2016 SCDigest Supply Chain Digitization Benchmark survey, 80 percent of companies are aggressively pursuing strategies and/or technologies for the digitization of the business; of those, 43 percent consider it a major initiative.

Much of the focus on digitization is clearly centered on the supply chain. Seventy-eight percent of respondents indicated that their companies were aggressively pursuing strategies and/or technologies for digitization, specifically in the supply chain; of those, 37 percent consider it a major initiative (see Figure 1).

How aggressively is your company pursuing strategies and/or technologies for digitization, specifically in the supply chain?

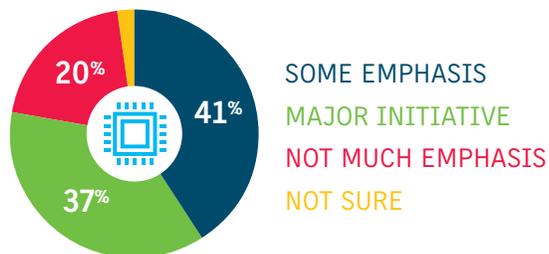
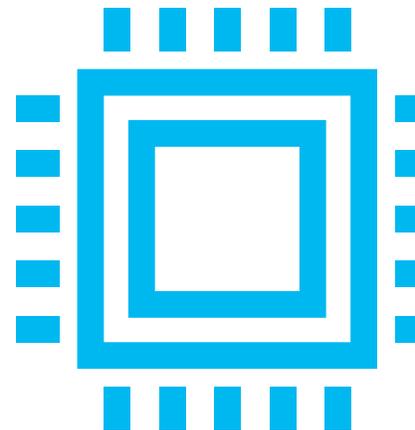


Figure 1

As shown in Figure 2, survey respondents selected supply chain visibility and supply chain systems integration (both internally and with trading partners) as the three most critical components of their current — and future — supply chain strategies. Advanced analytics and digitizing manual processes followed closely behind in significance to current and future supply chain strategies. Sixty-four percent of respondents anticipate investments in supply chain digitization technologies and capabilities to increase over the next three years.

By increasing visibility into both internal and external data, companies will have a better understanding of the opportunities, impacts and risks associated with their supply chain decisions. Better visibility can also lead to better utilization of assets and resources, driving greater efficiencies and greener operations.



How much are these aspects of digitization part of your company's strategy?

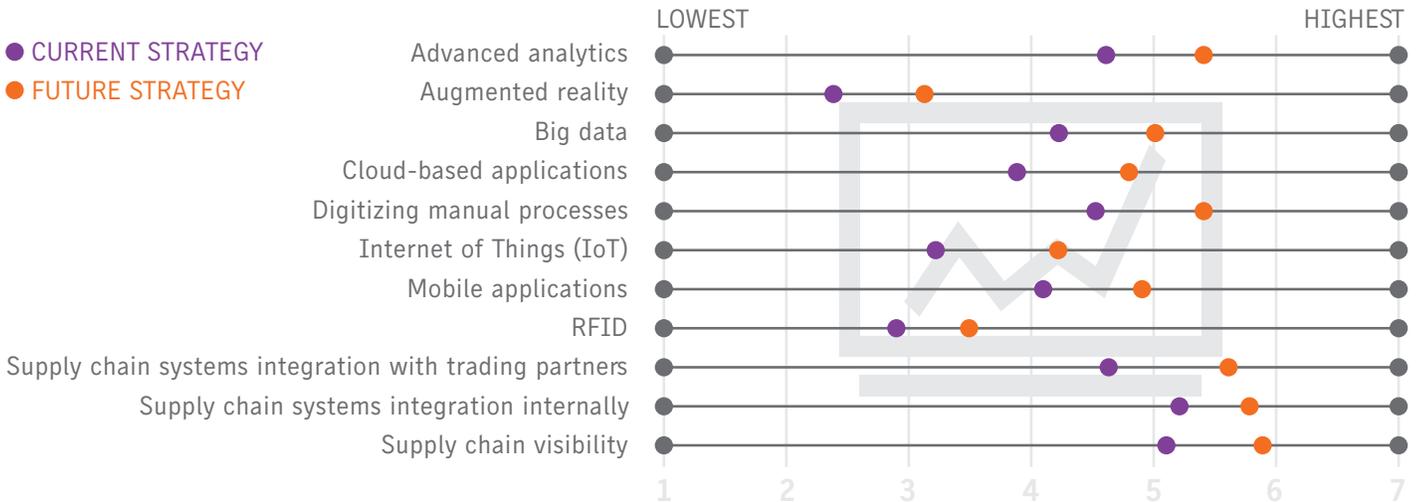


Figure 2

The IoT opportunity

The Internet of Things (IoT) refers to the network of physical objects connected through the Internet, as well as the intelligent communication that occurs between them. While there are many and far-reaching opportunities, we are focusing on the benefits of IoT in the following two areas:

- Enhanced product development:**

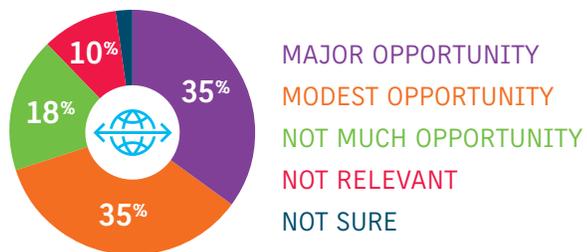
IoT can provide companies with insight into factors such as consumer preferences and product usage, which can then be used to develop new products or enhance existing product designs. Embedded sensors on industrial equipment, for instance, would enable a company to have access to the machine's key performance parameters such as temperature, pressure and ambient condition. With this information, the company has the ability to calculate the remaining life of critical parts and plan timely replenishments, avoiding expensive shutdowns.

- Improved supply chain performance:**

IoT can drive performance improvements across the entire supply chain through automation and dramatically enhanced end-to-end visibility. Using a combination of sensors (radio frequency identification, or RFID), connected devices and communication channels (3G/4G, GPS, Bluetooth, Internet, etc.), companies will have the ability to monitor transit status, including factors such as location, temperature and diagnostics, in real time. Some companies, for example, are already using this technology to track real-time transit information, as well as model ideal routes to optimize the freshness of perishable cargo.

When considering the application and benefits of IoT, survey respondents anticipate the greatest value to be gained from increasing supply chain performance/reducing costs, compared to developing product offerings with new capabilities and/or services (see Figure 3). In fact, 70 percent view IoT as an opportunity to drive product innovation, with 35 percent seeing it as a major opportunity. Eighty-five percent view IoT as an opportunity to drive improved supply chain performance/reduced costs, and of those, 44 percent view it as a major opportunity.

Opportunity of IoT to enhance products



Opportunity of IoT to improve supply chain performance and reduce costs

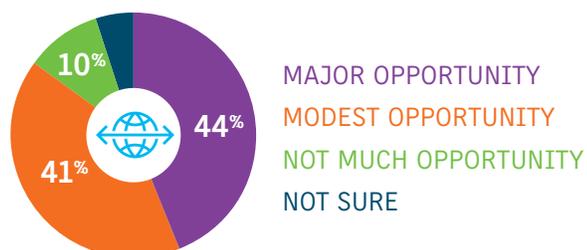


Figure 3

While there are many areas where IoT technology could improve supply chain performance, Figure 4 shows two areas that stand out as major opportunities: real-time inventory visibility (according to 55 percent of respondents) and understanding product flows/dwell times (45 percent of respondents).

Opportunity for improved supply chain performance via IoT



Figure 4

At a crossroads

Despite the promise of digitization to transform supply chain operations, the fact is many companies are still burdened by legacy systems that are often expensive to maintain, not to mention update or replace. Large companies, in particular, have accumulated such complex IT footprints (multiple instances of enterprise resource systems, plus many other systems with unique architectures and data models) that it is a challenge to combine and extract relevant data across all of those disparate systems in a timely manner.

These constraints make it difficult for companies to respond to change with agility. In fact, when unplanned events occur (such as a natural disaster or a competitor dropping its price), 46 percent of respondents do not have a systematic way to respond, or make ad-hoc or manual changes to their plans. For 18 percent of respondents, it takes approximately one week to respond to unplanned events due to planning cycles. Only 23 percent have planning and execution systems that are connected in real time, enabling them to respond almost instantly to unplanned events. It is these companies, however, that are best poised to take advantage of the real-time insights that IoT can provide.

Additionally, many companies are constrained by siloed functions within their organization, making visibility into their global supply, manufacturing and logistics networks difficult. Lack of integration and visibility between order management, transportation management, and warehouse management systems can lead to execution problems, such as expediting, incomplete or late customer shipments, and inadequate warehouse space.

In fact, few companies surveyed are achieving near complete visibility. Instead, the majority are experiencing fair to poor visibility in the following supply chain areas:

- real-time inventory, internally
- real-time inventory with trading partners
- global freight moves
- constraints that can impact supply chain execution
- manufacturing activity/production levels
- end consumer/customer demand
- major customer forecasts



The good news is that many companies have plans in place to change this. In terms of visibility with suppliers, 29 percent of respondents reported electronic integration with 10 percent or less of their suppliers, whereas by 2020, 39 percent of respondents anticipate electronic integration with more than 80 percent of their suppliers.

All of this is occurring at a time when demand is more volatile than ever before, thanks to tech-savvy and informed consumers who expect to find the right product, at the right time and at the right price – whether online or in store – with delivery options tailored for their unique preferences.

While survey respondents’ ability to forecast this changing demand varied greatly, Figure 5 shows that most agreed that the most promising technologies to improve forecast accuracy in the future are an S&OP-based consensus number, pattern recognitions powered by data science, and causal analysis, respectively.

How do you rate your current forecasting technology, and what is the attractiveness of each technology to improve forecast accuracy in the future?



Figure 5

Identifying the path forward

Sixty-six percent of respondents believe that being highly digital in terms of supply chain operations will provide significant competitive advantage over the next five years, and 8 percent believe being highly digital will be required just to maintain current competitiveness. Of the potential digitization technologies and capabilities, respondents anticipate that supply chain visibility, advanced analytics, and supply chain integration with trading partners will drive the most value in their organizations (see Figure 6).

Which aspects of digitization do you believe can drive the most value?

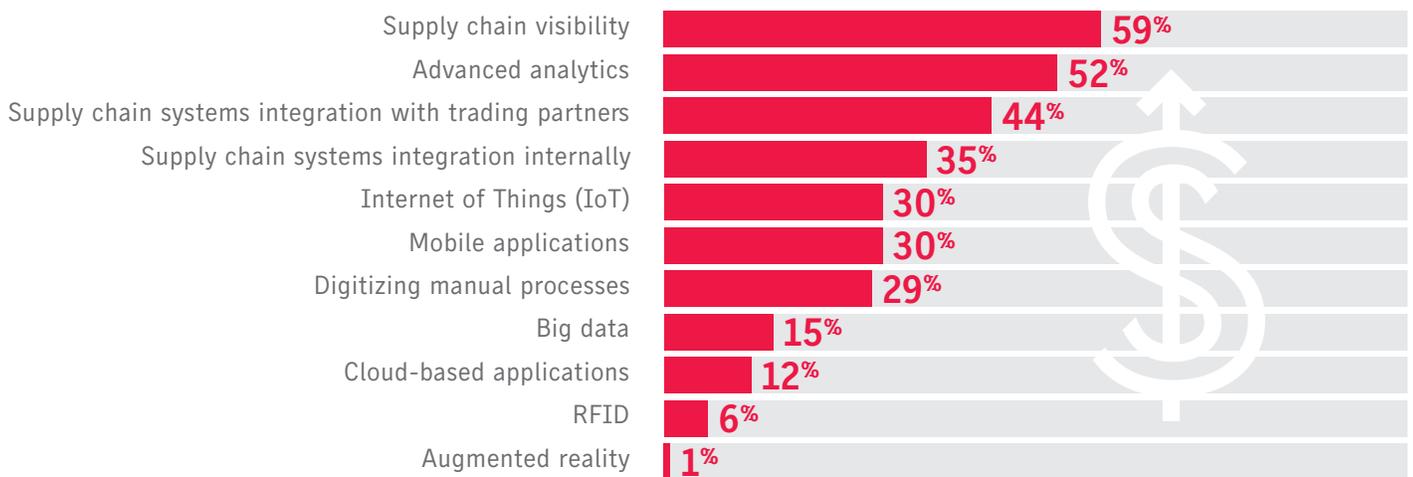


Figure 6

Yet, despite this optimism for the future, only 10 percent of respondents have a holistic digitization strategy in place, and just 41 percent are currently developing such a strategy. The chief barrier to supply chain digitization cited by survey respondents was a lack of internal systems integration to support digitization.

A new path to supply chain excellence

As more companies look to develop a comprehensive digitization strategy, a re-evaluation of supply chain systems, infrastructure and data models will be required. The sequential “buy, make, move, store and deliver” model can lead to the bullwhip effect, where disparity between actual demand and forecasted demand is amplified as changes are communicated upstream. Given the latest advancements in digitization, there is no reason for companies to be constrained by this linear model.

Instead, companies will need to adopt a grid-based approach to supply chain, in which a network of multi-directional decision paths, nodes, processes and systems are interconnected. This will enable companies to not only be more agile and responsive to demand changes, but also to serve customers in the most profitable way. Advancements in computing power, analytics and machine learning have allowed this grid-based approach to become a reality.

This grid-based supply chain supports dynamic information sharing with and across trading partners, distribution and fulfillment points, and provides internal business units with greater visibility into upstream and downstream nodes (thus breaking down silos). Automation speeds up processes across the grid, supporting concurrent planning and re-planning for even greater supply chain efficiency. This approach also enables companies to tailor different service levels for different customer segments using the same physical assets in order to drive profitability.

The result is a seamless supply chain that enables companies to achieve desired business outcomes most efficiently in today’s competitive environment.

This is further enhanced by the adoption of the following three key tenets — profitable customer commerce, adaptable manufacturing, and intelligent fulfillment. These three key tenets are critical to achieving supply chain excellence in today’s competitive environment:

- **Profitable Customer Commerce** ensures that orders are promised in the most profitable manner, while providing consumers with a personalized and consistent brand experience when shopping across all channels.
- **Adaptable Manufacturing** supports agility and responsiveness to demand changes, as well as resilience to supply disruptions, while maximizing the return on physical inventory, machinery and labor.
- **Intelligent Fulfillment** connects planning and execution processes in order to profitably satisfy demand according to the unique needs of individual customers.

For companies looking to achieve greater supply chain visibility and integration, often the simplest way to get started is by adopting sales and operations planning (S&OP), or integrated business planning (IBP) capabilities. Supported by good processes and organizational structure, these capabilities will break down silos and provide stakeholders with end-to-end visibility into one plan. With this strong foundation in place, companies will be better positioned to take advantage of the advances in digitization, driving more revenue, profit and efficiencies across their operations.



Key takeaways:

- Companies acknowledge digitization is a key priority, yet are lagging behind in terms of deployment.
- Increased supply chain visibility/integration are the most important components of current – and future – supply chain strategies.
- Moving to a grid-based supply chain can better support profitable customer commerce, adaptable manufacturing and intelligent fulfillment – all of which are required to achieve supply chain excellence in today’s competitive environment.
- Focus on driving visibility throughout your organization and across trading partners, leveraging enhanced access at all products and nodes.
- Consider adopting S&OP, or IBP, as a first step toward leveraging digitization to support end-to-end visibility and drive significant value.

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