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Digital Supply Networks:
Unlocking the potential of your supply chain

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Digital technologies are not only altering our personal lives radically, but also challenging traditional ways of doing business. As CEOs think of ways to make their businesses digitally relevant, a practical way to go about it is to look through the lens of what we call the digital strategy framework (see Figure 1). The framework helps CEOs and the next level of business leaders to segment the digital journey across multiple dimensions simultaneously, thereby ensuring multiple organizational initiatives around digital transformation remain tied to a holistic foundation.
Digital impacts multiple dimensions of businesses, and the impact on supply chain management is particularly pronounced. Businesses cannot unlock the full potential of digital without reinventing their supply chains. With the help of digital technologies, companies can now provide untold number of products and services, changing the way businesses design, source, make, move, store and service products. According to an Accenture global survey, in addition to external pressures, 72 percent of the companies surveyed are facing internal pressures from the top management to implement digital technologies in their organization’s supply chain. By adopting digital technologies in their organization’s supply chain, 94 percent of the organizations surveyed believe that they can derive significant value in terms of efficient and responsive operations, cost reduction, risk mitigation, revenue enhancement, closer and personalized customer connect, and brand differentiation.

Most companies understand how elemental these changes are. And many are working to introduce new digital capabilities into their operations. But even companies that embrace these challenges often overlook the difference between traditional supply chains that have been “digitally enhanced” and truly integrated, reinvented supply chains whose DNA is fundamentally digital. Most organizations, in fact, are doing the former: They are welding digital capabilities onto traditional supply chains, thus creating hybrid models that combine older paper-based and newer IT-optimized processes. In effect, these organizations are trying to construct new buildings on old foundations. Piecemeal digitization of supply chain elements is counterproductive. Reimagining the supply chain as an integrated digital supply network is essential to generating value.

On one end of the supply chain continuum, you have digital technology “enhancing” an existing business process, model or methodology. On the other end, you have a wholly reinvented way to think about and operate your supply chain. Imagine a sailing vessel in the 1700s: At that time, all four building blocks of a supply chain—product, talent, information and currency—departed together and arrived together. Over the centuries, those building blocks did not become less necessary but their channels diverged. Today companies might have a data center in Bangalore, India, production in China, invested capital in the United States and employees working worldwide. Digital technology is not about reuniting these entities in a physical way. It is about this opportunity to effect savings by reuniting product, talent, information and currency electronically through a digital supply network (see Figure 2).

Digital Strategy Framework

As shown in Figure 2, four of the most disruptive technologies of our time—social media, mobile communications, analytics and cloud computing—are setting the stage for this reunification of the building blocks.

According to the Accenture global survey, these digital technologies have already impacted the supply chains of 60 percent of the organizations surveyed and their impact is likely to extend to almost all the companies over the next three years. Let us take a closer look at some of these digital technologies.

Social media can help companies tap innovation from outside the walls of the organization, generate demand triggers for specific products and services, engender customized treatment through social channels and targeted product and service offerings, and showcase products to solicit early feedback and reduce selling costs. Dell has leveraged technology to collect and analyze customer data through social media. This information helps Dell quickly spot trends and issues, and serves as an early warning and feedback system.

Mobile communications can provide real-time support for corporate field forces, offer a platform for store-specific apps that drive demand, provide status updates on product deliveries and set the stage for remote payments and new buying opportunities. Verizon has developed mobile apps and a Web-based management application that helps its field employees work smarter and faster.

Analytics can help companies analyze employee behaviors and improve efficiency; implement alerts and response actions; assist with predictive maintenance; understand customer behaviors that inspire new products, services and customization opportunities; and review contracts to optimize procurement spend. A leading Indian automobile original equipment manufacturer (OEM) is leveraging analytics to drive insights to increase service revenue and market share, and to achieve cost reduction through interventions in warranty and claims management.

Cloud computing can provide remote access to experts to help companies educate employees and solve problems, raise the contribution of partners and suppliers through portals hosted in the cloud, increase access to applications and crowdsourcing opportunities, and provide end-to-end source-to-pay functionality. Accenture’s connected crop solution, Krishi Connect, helps farmers manage entire crop cycles. This cloud-based solution supports farmers with just-in-time product advisory throughout the crop cycle, maps farmers to retailers and helps inventory management, and identifies crop distribution, high-value sales and stocking needs.

Other than the above mentioned four key technologies, supply chain operations are also being significantly impacted by disruptive technologies (not limited to) such as the Internet of Things (IoT), 3D printing, robotics and artificial intelligence.

IoT combines sensor-driven computing, industrial analytics and intelligent machine applications into a single universe of connected intelligent industrial products, processes and services. Accenture leverages IoT to provide the connected worker, connected equipment and connected material as service solutions. These solutions allow clients to gather real-time analytics and insights to drive improved decision making during capital projects, turnarounds and operations.

Figure 1: The digital strategy framework

Figure 2: Digitalization is helping to combine traditionally distinct supply chain elements into seamless digital supply networks
Rio Tinto has implemented a connected worker solution through which it tracked more than 1,800 contractors with radio-frequency identification (RFID) tags to enable productivity monitoring and improvement, better management of fatigue, management of density alerts, and improved contractor financial reconciliation. BHP Billiton is working with suppliers to develop sensors to monitor the health of its trucks to predict failures and boost utilization.

3D printing is an additive manufacturing process that takes computer-aided design (CAD) or other data file formats of a 3D image and converts them into solid items, possibly with moving elements. GE’s aviation division, the world’s largest supplier of jet engines, is making huge investment in additive manufacturing technology to produce a fuel nozzle for a new aircraft engine using 3D printing. 3D printed nozzles are 25 percent lighter than regular parts and five times more durable.

Robotics process automation is a combination of user interface recognition technologies and workflow execution. The resulting capability emulates the work of a human agent using screen and keyboard to drive applications and execute system-based work. Kiva Systems has revolutionized the concept of a fully automated warehouse. Using a fleet of mobile robotic drive units, movable shelves, workstations and sophisticated control software to automate the pick, pack and ship processes, Kiva Systems offers a faster path to a distribution powerhouse offering the competitive advantage necessary to succeed.

The early adopters of these digital technologies have already started getting benefits in terms of increased visibility into their supply chain operations, improved ability to manage volatility and supply chain risks, better insights from data for informed decision making and increased integration among internal functions. They have also developed smart and connected products and services to drive growth.

Of course, not every digital technology is relevant to every company. Thus, there is no one-size-fits-all prescription for digital supply networks. However, there are four distinct advantages that should be associated with virtually every digital supply network: Connected, Intelligent, Scalable and Rapid (see Figure 3). The more these advantages are realized, the better a company’s market and financial performance is likely to be.

Connected: Leveraging various digital capabilities, connected companies enjoy extensive visibility, outsized influence and high levels of control. Connected companies interact more fully with the entire business ecosystem. Often in real time, they can react, relate and communicate more completely with customers—diagnosing the latter’s needs and involving them in product planning and design initiatives.

Intelligent: The connected advantage provides access to data. Savvy companies extend their connectivity advantage by using digital to turn that data into valuable information. The key is leveraging analytics, cognitive equipment and smart apps to provide the right information for decision making. This higher level of intelligence leads to the creation of an intelligent network.

Scalable: Companies often struggle to scale their supply chains up or down as required. However, smooth scalability becomes more attainable when a supply chain has been imbued with high levels of (digitally enabled) connectivity and intelligence. Processes become easier to optimize and duplicate. Errors and anomalies are simpler to spot. Companies are better able to add or reduce partners and suppliers as needed.

Rapid: Speed is going to be one of the most important currencies in the future. The further ahead we look, the more companies’ processes and priorities may need to change as fast, or faster, than their products. In response, they will need to use digital technology to diagnose more quickly, adjust more rapidly and execute more efficiently. By making their supply chains more predictive, real-time and scalable, companies can move fast to take advantage of growth opportunities. Leading companies are not only better at sensing market shifts more accurately than their competitors (50 percent versus 22 percent, according to our research). They can also allocate product design and manufacturing capacity across their facility network much more quickly and dynamically (55 percent versus 23 percent).

There are multiple obstacles which some organizations face in implementing a digital supply chain. For example, lack of alignment between digital strategy and supply chain strategy, digital technologies are not given priority within the organization, the organization ecosystem (customers, suppliers, partners and others) is not ready for digital, digital is only seen as an enabler for automation of processes and/or online channels. However, these obstacles can be overcome by following a systematic process to transform a traditional supply chain into a digital supply network. This process follows three primary steps.

1. Envision the Power of the Network

At the outset, it is essential to define the digital supply network vision for the organization. The vision should identify the specific business outcomes to be achieved from the digital supply network. A primary input for the vision is the new demands and services being required by the digital customer, today and in 10–15 years from now.

2. Conduct Value Chain Analysis

Once the vision is defined, the next step is to conduct a value chain analysis to identify the value-creating activities that are at the core of the digital supply network. This analysis is a top-down approach, which consolidates all activities required to help realize the business outcomes, regardless of their function or process origin.

3. Map Your Digital Journey

With the vision defined and the core activities revealed, a digital blueprint for the organization can be created. The blueprint sets the milestones for the transformation journey and acts as the road map for change. The blueprint should take into consideration the people, process, technology and governance aspects of the transformation.
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