Supply chains:
the platform for driving true business transformation

We are entering a new industrial age. Smart technologies are transforming how we produce goods, connect to customers, and conceptualize the business. It's time for supply chain executives to embrace their role as business change agents and to implement the advanced mindsets and capabilities for leading in the Age of Intelligent Machines.

CHANGES ARE HAPPENING NOW in supply chains that have the potential to transform the entire business enterprise. The long-sought-after "holy grail" of more agile and resilient supply chains with strong connections to customers is finally within reach, thanks to technology's ability to provide end-to-end performance visibility, big data analytics, and real-time information to everyone.

Some may be a little skeptical of this claim. It is true that enterprises having been putting business transformation near the top of their strategic agendas since the 1970s when what the World Economic Forum calls the "Third Industrial Revolution"[1] (the IT transformation) began. In fact, the term "transformation" is so overused that it has become almost meaningless. But the technological advances that we have seen over the past several decades have finally driven us to a tipping point. We are now on the precipice of a Fourth Industrial Revolution

that will truly transform business and all stakeholder relationships. This industrial revolution is being driven by rapidly evolving smart technologies—such as artificial intelligence (AI), machine learning, and the internet of things (IoT)—that make end-to-end supply chain visibility and customer-focused structures and alignment mechanisms possible. In addition to these structural and technical changes, the Fourth Industrial Revolution will unlock cultural changes that will make it possible for people to be significantly more creative and efficient. (For more information, see the sidebar on "The Four Industrial Revolutions.")

Supply chains—extended to include sales and operations planning (S&OP) and even aspects of the commercial function—are in a powerful position to drive this deep transformation in both the hard (structural and technical) and soft (human and cultural) dimensions of

the business. This is because they are the focal point for the artificial intelligence/digital/internet of things disruption, contain the main activities that add value for customers, and account for about 80% of the business' costs and associated risks.[2] But supply chains are often marginalized, lacking representation in the C-Suite, and outranked by other functions such as finance, marketing, and sales. That all has to change, and the quicker the better.

Why? Because supply chains are at the sizzling hot leading edge of the movement into the Fourth Industrial Age. This means that supply chain leaders must become active change agents for both their end-to-end value streams and the overall business that supports them. To accomplish this feat, supply chain leaders will need to develop new decision-making capabilities, transform their supply chain organizational structures, and get rid of old, nonproductive mindsets.

Why the new urgency for change?

The push toward the Fourth Industrial Revolution has accelerated over the past two years. Not only are technological advances occurring at a fast and furious rate, but the level of volatility in the supply chain has also increased. Even during business-as-usual (BAU) times, variability in demand and supply can be +/-40% to 50%—much greater than in the past.[3] In addition to BAU volatility, the black-swan event of COVID-19 has shaken companies and societies to the core, wreaking huge economic and health damage.

As a result, organizations now face a two-tier level of volatility: a normal BAU amount of volatility and volatility from extreme disruptions. Furthermore, we can expect more extreme disruptions caused by future black-swan events, where demand and supply variability will be off the charts, possibly by +/-100%.

In the face of these raised levels of volatility, we have no choice but to lead transformative changes that will futureproof our supply chains against what is an unforgiving operating environment. Simply going through the motions of change is no longer an option. Companies that make changes simply to make them—without having a desired end point in mind or following a systematic process—will never achieve success. The only way forward is to change most if not all the settings in the enterprise at both the human and technical levels.

Transform your decision-making

To understand what we mean by changing all the settings in the enterprise, it is helpful to think about the different time frames that companies have for different decisions: two to five years out for strategic decisions, one to 24 months out for tactical decisions, one to 30 days out for operational decisions, and in real time for execution-level decisions. Achieving a highly resilient enterprise that can grow and prosper in today's uncertain environment will require new, advanced capabilities across all four of the time horizons as described below. (Although we split them apart below, all four levels will ideally work together as a whole ecosystem. The work being done at each of the various time horizons will intermingle with and support work being done at other levels.)

Strategic (two to five years out): To incorporate the technology and flexibility needed to handle increased volatility, companies will need to reimagine and reconfigure the following: their network infrastructure in terms of capacity; sourcing mix and location; manufac-

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turing capacity and location; and strategic partnerships with logistics providers. To do this right, enterprises need to segment their target markets more precisely along *buying-behavior* lines and ensure that their internal capabilities are fully aligned with those behaviors.

Tactical (one to 24 months out): Companies will need to support their classic S&OP processes by developing tactical scenario-testing capabilities for use in times of serious disruption, when conventional forecasting processes become unworkable and unreliable. We are talking here about modeling different possible demand scenarios to try to understand how to run the business in such volatile operating environments. This new capability will allow the enterprise to become more agile and resilient.

Operational (one to 30 days out): To better serve their customers, enterprises will need to develop the ability to make day-to-day allocation decisions based on a predefined buying-behavior segmentation regime. This capability requires end-to-end digitization that provides full visibility of the operation and enables faster, real-time decision-making. The faster decision-making, in turn, greatly enhances the resilience of the entire enterprise.

Execution (live, in real time): Enterprises will need to deploy a control tower to monitor all orders in the system, from the exact time of order receipt through to final delivery to customers. The control tower should provide real-time alerts when delivery promises are at risk. The control tower will monitor external risks (such as port and shipping delays) and factor these into the overall alert system. IoT-driven tracking and tracing, along with blockchain-based provenance and security measures, will also be part of this complete service package for customers.

Smart technologies, such as digitization, big data, and AI, are also transforming *how* decisions are made. More people—no matter what their roles are—can now have real-time access to the information and perspectives that they need to do their job. As a result, individuals and teams will be better able to manage themselves, work together, and make the types of decisions described above without guidance from management. Enterprises will no longer need to rely on the traditional organizational chart and cascading orders to ensure that the entire operation's decisions are aligned around its goals.

Structural transformation

At the same time that enterprises are transforming their decision-making capabilities to better fit the emerging Fourth Industrial Age, they also need to be transforming how they structure their supply chains. New technological capabilities (supported by the appropriate mix and timing of the above described decision-making capabilities) allow for more customer-aligned structures. Clearly, the "one-size-fits-all" supply chain model traditionally adopted by enterprises through the turn of the century is flawed. It assumes that all customers have the same underlying buying behaviors or expectations. We know this is not true, of course. It never was. But what is the alternative?

Our initial research across three decades in multiple industries and geographies surfaced 16 archetypal customer-buying behaviors. Additional field investigations showed that these 16 could be condensed into five dominant customer configurations that account for up to 80% of the demand patterns in a given product-market combination. (See the sidebar on the "Five customer configurations" for more detail.) From that research was born the idea of designing enterprise supply chains from the "outside-in" along the lines suggested by customer demand patterns. Each configuration would have operating properties and capabilities that deliver value propositions in a precise and aligned way that matches the specific customer-buying pattern identified in the target market. These customer-focused supply chains would replace the more traditional supply chain structure that is organized around functional silos and management hierarchies.

As Figure 1 shows, these customer-focused supply chains are more aptly called *value streams* because they flow horizontally across the organization and external players, accumulating value along the way. Value streams are also a more accurate way to describe the main organizing principle of the 21st century enterprise (providing value to the customer).

Thinking in terms of customer value streams, however, has implications for future organizational structures and governance. Enterprises will need to ensure that the decisions that they make across all four time horizons support this value stream orientation. Furthermore, they will need to ensure that the value streams are supported by ever-evolving functional expertise, big data, and relationship management.
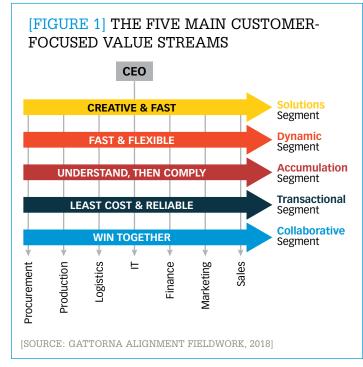
Mindsets: the last barrier

Enterprises are already redesigning their organizations to bring the customer value stream to the foreground, and those redesign efforts are being shaped by digitization in the supply chain. These structural and technological changes are finally creating the conditions for the culture change that organizations have sought in vain for the last half-century: the realization of an organization that is adaptive, resilient, innovative, and customer-centric. In other words, an organization that functions as a living system—not just a mechanical one.

Leaders and the workforce are generally aware of the culture changes needed to unleash the potential of their new technologies and customer value stream structure. At the same time, everyone in the business has been building skills for dealing with change and operating

[FIGURE 1] THE FIVE MAIN CUSTOMER-FOCUSED VALUE STREAMS

[SOURCE: GATTORNA ALIGNMENT FIELDWORK, 2018]

in more participatory, less hierarchical environments. At this point, it's *mindsets* that are preventing breakthrough. As the comic strip character Pogo famously said: "We have met the enemy and he is us (sic)."

Three powerful mindsets continue to sustain the norms and behaviors that drive old cultures: *command-and-control relationships*, *silo identities*, and the application of *engineering approaches* suited for technical problems to human problems. These are powerful cultural forces that work against creating an environment that fosters initiative taking, creativity, cooperation, and rapid problem solving. They generally reflect the mechanical view of the enterprise that was launched with the adoption of assembly lines and task specialization in the early 1900s. The goals then were efficiency and control of variability in human behavior. The view of people was as parts of a machine.

But now that we are entering Industry 4.0, these three mindsets can no longer dominate. If they do, then organizations can't act fluidly within today's dynamic (living) markets and customer environments. And they leave vast amounts of human creativity, energy, and capacity on the table.

Instead, every part of the enterprise must be empowered to act based on common goals and available information. While there will of course be decision and expertise hierarchies, power must now be more diffused rather than concentrated at the top. This diffusion of power will unleash more of the agility and creativity organizations seek today. While everyone brings unique capabilities and expertise to work and may have silo affiliations, they must ultimately act for the best interests of customers and the larger business. That is, people are both a part of and a microcosm of the whole organization. Finally, while rational, engineering thinking is vital for business success, decision-making and problem solving related to people and complex systems often require more probabilistic and, for people, psychologically appropriate approaches.

Mindsets that center on command-and-control hierarchies, siloed thinking, and over-dependence on rational problem solving keep people from using skills and approaches that are vital in an emerging business environment that is more digitalized and fluid. A value stream structure cannot prevail when leaders assume that "power to" means "power over;" when the organization hierarchy operates out of entitlement, fear, and fealty; when people identify more with their silos than the mission of the enterprise at large; and when people are treated—and even view themselves—as though they are machines that can be switched off and on. If these mindsets are still in play, a great deal of mental and emotional sludge will continue to clog the system, eventually grinding it to a halt.

It's time to deal with these mindset problems head on, so that we can form the culture necessary to push through the needed structural and technical changes. These transformations will help carry organizations across the threshold and deep into the Fourth Industrial Revolution. △

Notes:

1. As Klaus Schwab, head of the World Economic Forum, points out, there have only been three industrial and related societal transformations since the 1800s: Water and steam power drove Industry 1.0; electricity enabled mass production for Industry 2.0; automation and computers launched Industry 3.0. Now autonomous systems, AI, IoT, and the encroachment of technology into brain work are shaping a new era (Industry 4.0).

2. This percentage is based on field research performed by Gattorna Alignment.

3. Based on fieldwork with Gattorna Alignment clients.

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