

New organizational wires for digital supply chains

Higher revenues, lower costs, and delighted customers have always been the goal. But to achieve all three, you'll need a new supply-chain operating model.

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Supply chains are inherently difficult to transform. The promise: completely smooth operations, optimized and transparent from the customer through to the supplier. The too-frequent reality: restrictive, siloed cultures insert a long list of functional intermediaries between demand and supply, each theoretically accountable for decisions that they do not fully own. And, at the same time, the fire-fighting drills typical of everyday work leave too little time for thoughts of continuous improvement or prototyping of innovative ideas.

None of these organizational headaches are exactly news. But in a digital world, curing them is no longer optional. With rapidly evolving customer demands and business models, companies must remove functional barriers now. They can't risk missing crucial market opportunities by reacting too slowly merely because the "wrong" part of the organization heard the signals first.

That means committing to a next-generation supply-chain operating model: one that manages flows digitally, with end-to-end supply chain capabilities, anchored in efficiency and orchestrated across functions in a way that removes friction and dramatically improves customer experience, revenue, and cost. This is the opportunity for the supply chain organization to rise from being an execution-focused function to being at the center of growth.

The case for rewiring the supply-chain organization

Getting there is no easy feat. The case for organizational change isn't likely to get off the ground until we first discard a few persistent myths on supply-chain digitization.

Myth #1: "I don't own it – digital is IT / corporate territory"

Reality: Some executives still ask themselves, "Who really owns supply-chain digitization—should it be the supply-chain function, or IT? Or should we wait for a [chief digital officer](#) to be brought in?" But leading players in high tech, consumer goods, and chemicals have already dismissed the question. Instead, they're plowing ahead, creating cross-functional organizations whose joint leadership can drive digital organically.

Bringing supply-chain and IT leadership together allowed one consumer-goods business to short-circuit decision cycles and speed new ideas to market. The leadership presented a series of supply-chain innovations (such as track-and-trace technology in stores and warehouses) in a way that corporate stakeholders could easily digest. By dropping the technicalities and instead just focusing on where to best use the store network and digital capabilities, the leaders were able to excite the rest of the organization about providing more convenience, accessibility, and personalization for the consumer. Moreover, the newly tech-enabled, customer-focused supply chain reinforced its own efficiency, capturing additional sales volume. The entire effort doubled national sales.

In other situations, digital inroads have begun with supply-chain leaders seizing an opportunity—even a seemingly small one. At a global chemicals company, the supply-chain head led a digital walkthrough, which assessed the organization's readiness for advanced digital solutions in the context of its strategy, planning, and execution processes. After comparing the company against best practices in data, analytics, software, hardware, people, and processes, the leader proposed a digital roadmap that leveraged the strengths of the supply chain, and paved the way for increased cross-functional collaboration with sales and operations teams in a “control tower” platform. The success of the initiative has prompted an immediate review of further opportunities for digital and analytics applications in the wider organization.

Myth #2: Supply-chain digitization is all about getting better data and tools.

Reality: Data and tools are essential—but [does your organization have what it needs](#) to use them effectively? Most organizations need to build muscle before they can take full advantage of the more precise, granular, and frequent data insights that today's best systems generate. Survey data have [repeatedly revealed](#) that misaligned organizational structures, along with insufficiently reworked business processes (to take advantage of the digital opportunities) and difficulty finding talent (such as data scientists), are some of the biggest challenges that companies face in realizing potential from digitization.

But moving too cautiously carries its own risks. A successful digital transformation finds data work-arounds to capture value quickly, while investing upfront in cross-functional collaboration and team dynamics. A [test-and-learn](#) culture is also essential, along with new skills that span technical, functional, and leadership capabilities. New digital and analytics tools will complete the picture and unlock the full, longer-term potential.

A large manufacturer provides a vivid example of what can happen when these factors don't come together. Keen on perfecting its IT backbone and cleaning up all the data glitches, the company took the long route to implementation. It ended up being bought twice while the project was underway, forcing it to align to new systems again and again. At the same time, the supply-chain function invested in building its own database to develop small digital solutions. Lack of communication with commercial and production leaders meant the proposed solutions failed to meet important needs. As a result, bottom-line improvements failed to materialize from any of the company's efforts.

Myth #3: Analytics and technology will make us “naturally lean”; afterwards, we can think about changes to the way we work.

Reality: Undertaking a digitization project before assessing your current processes, activities, and roles for operational inefficiencies can lock in waste. A high-tech manufacturer recognized the risk. For example, its current practice incorporated a break for manual data input whenever a customer needed a change to product specifications. Because each product involved hundreds of attributes, the company required two months of lead time to change specifications in the system—a process that involved copying data in dozens (or even hundreds) of product configuration sheets, and consumed an estimated 30 percent of product engineers' time.

Just automating the repetitive tasks would have eliminated only half the waste. Accordingly, the organization decided to rethink every aspect of how it managed product changes, from its data structures to its job description. The output was a new automation tool for product-configuration updates, which integrated all of the workflows required for engineering changes. The impact? Freeing up some 35 percent of highly qualified engineers' time—even more time than the old process required—which could then be redirected to value-added activities in a supply-chain hub.

Once processes are fully lean and prepared for digitization, [Supply Chain 4.0](#) technologies can reduce handovers and lead to drastic reductions in cycle time and improvements in quality. As a senior executive described it, “Once you are under one system and one structure, it is much easier to influence all kinds of changes. Be it system change, be it process change, be it policy change, be it organization change, be it any change which affects the whole supply chain.”

Reinventing the supply-chain organization

Organizational changes are bound to be slower and more complex than the technological changes they enable, so leaders must address timing carefully. Cracking the organizational code to successfully transform into digital supply chains may require a two-step approach:

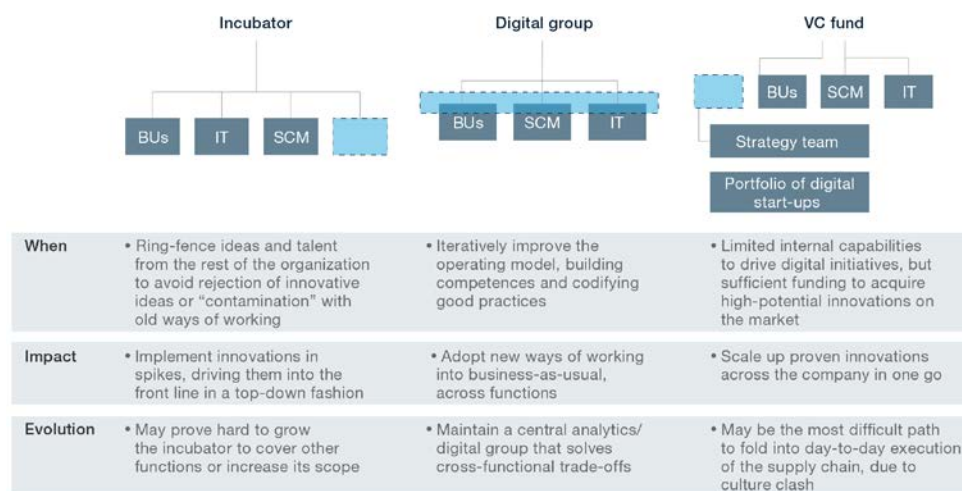
- First, establish a fast-track organizational mechanism to get projects off the ground quickly;
- Second, rewire the permanent organization to absorb successful innovations into business as usual. This may involve redesign of the organizational structures to allow digitization's new ways of working, which relies on breaking siloes between functions.

Fast-tracking decisions

There are a range of options for structuring an organizational “insert” to help kick off supply-chain digitization. Many companies already on their digital journeys have started by hiring new talent (data scientists, programmers, and designers) into a central unit under an “incubator” model, shown at left on Exhibit 1. Other companies create dedicated “digital groups” that drive innovations across functions and business units, iteratively improving on minimally-viable products. Finally, a few adventurous organizations set up venture capital-like funds, which tap into external organizations to access technology and know-how difficult to acquire otherwise.

Exhibit 1

Three types of organizational inserts can start the journey toward supply-chain digitization.

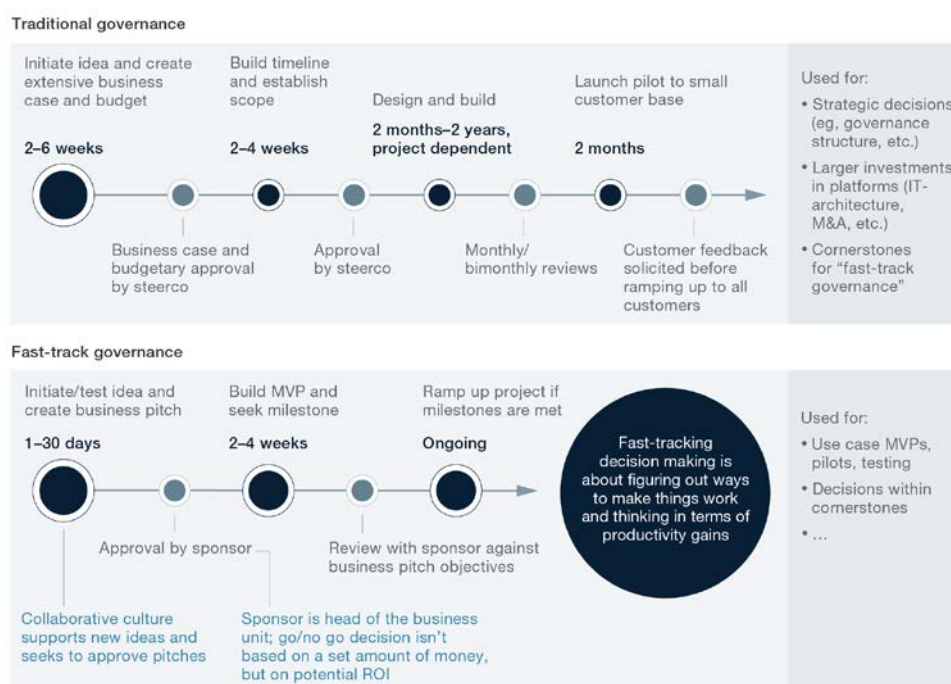


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Regardless of the structure, however, any digital unit will need faster decision making. The goal is to make ideas work (or fail) quickly, instead of getting stuck in investment-approval committees and stage-gate control mechanisms. A digital roadmap requires continuous improvement of ideas, based on an ongoing cycle of testing, learning, and refining. To accommodate these needs, an organization can set up a cross-functional governing body (parallel to the day-to-day leadership structures) with a mandate to oversee case selection and implementation, encourage initiative-taking, and foster calculated risks and cross-departmental collaboration (Exhibit 2).

Exhibit 2

A 2-speed decision-making organization helps fast-track digital initiatives.



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One food producer started by having supply-chain teams bring rough ideas forward for validation by a cross-functional steering board, which helped focus everyone on tangible outcomes that would capture value.

As a proof-of-concept proposal started taking shape, target stakeholders and end-users were brought in to aid in testing and co-creating. Once an idea graduated into a successful prototype, the leader would gather a broader team and build an implementation plan that included integration of the solution in day-to-day operations. This approach assumed and reinforced buy-in from the frontline, and accelerated change management and adoption by promoting digital supply-chain champions.

Rewiring the permanent organization

For digital solutions to achieve their most important and enduring impact—stronger customer relationships, deeper operational insights, faster strategic innovation—they must be integrated in the supply chain's day-to-day environment. Organizations will need new structures that can adapt to the changes and operate seamlessly with new technologies and expectations.

While no single model offers a solution, in our work with a wide range of businesses, we have seen three common factors in organizations that successfully absorb digital innovations: integration, centralization, and autonomy.

Integration

In traditional supply chains, a significant source of suboptimal outcomes is internal: the break points in decision making among commercial, operational, and procurement subfunctions, each in its own silo. Multiple decision makers, competing incentives, and the sheer effort required to compile data all conspire to make genuine insights almost impossible to generate.

Technology now provides relief. Sophisticated algorithms automate the arduous task of modeling trade-offs, with connections to legacy systems that enhance performance transparency and make scenario development far more robust in optimizing business decisions. As a result, the demand and supply sides of the organization can now coordinate much more closely and balance one another's efforts.

An industrial-machinery manufacturer was able to bring demand, supply and inventory planning together in the form of *end-to-end planning roles*, which serve as a single point of contact between commercial and supply units. Co-located at shared-service center, the planners coordinate order fulfillment from start to finish. Together with IT investment, the changes streamlined operations, increased visibility and responsiveness, and increased service levels at lower cost.

Centralization

The foregoing example also illustrates the second success factor: centralization. For some years, shared-service centers have helped organizations improve efficiency by increasing spans of control and deepening pools of specialized talent.

Now it's time to raise aspirations. Today's automation can help the supply chain run much more smoothly from a single cockpit. It's already happening at a global high-tech organization's assembly facility in China, where advanced optimization and decision making have penetrated well beyond manufacturing to reach planning and order-management processes. The company reduced friction in decision-making by linking the factory in real-time to supply-chain planning and alert systems.

How did the company get there? It started with a small team in a centralized digital center of excellence. The team's growth was conditioned on its ability to drive efficiency and effectiveness gains, so every small prototype had to show impact before new resources could be added. Today, the center is a value-creating unit, hosting three types of roles:

- **data scientists** who briefly join projects, reviewing and developing prototypes for new applications of data analytics and automation;
- **process integration specialists** who take proven prototypes to scale, dealing with the nitty-gritty details of integrating with current processes; and
- **lean process-improvement experts** who hunt for efficiency and effectiveness opportunities in established ways of working.

Globally, the supply chain is controlled from the headquarters, in a central analytics and execution hub. Scheduling is optimized in real time every 12 hours. Factory-level planning is executed two to three times per day for a four-week horizon, while six-month supply planning is reassessed daily. Long-term capacity and business plans get created and analyzed weekly or monthly, optimized for changing circumstances.

With the day-to-day execution of supply chain transactions largely automated, and physical flows outsourced, this operating model is aligned with the true sources of value in their business. More agility to adapt to market demand has made the organization much more cost-efficient and generated substantial new capacity to drive growth. And lead times for orders have fallen more than 90 percent.

That's what centralization can do now. Ultimately, it could achieve an even more radical outcome: the "lights-off" supply chain, analogous to the fully-automated factories that need no lights to operate. Big-data and industrial internet-of-things technologies are increasingly being deployed in production and physical-flow operations, and it appears that they could increasingly handle many of the tasks at the core of the supply chain.

Autonomy

Greater integration and centralization lead to the third characteristic of successful digital supply-chain organizations, autonomy, which takes two forms:

- **autonomy of the supply chain as a service platform** for business units, reaching even beyond the borders of the enterprise to create external revenue from offering "supply chain as a service," and
- **autonomy of customer-facing teams**, empowered by digital technology and analytics, to make consequential decisions at speed.

Digitization makes it possible to build autonomy and empower the supply-chain organization to manage and control its own work. Equally important is to give supply chains a mandate for self-regulation, while making their performance visible and consequential.

A consumer-goods company flattened out its entire organization, flexing the muscles of supply chain as a profit center. It transitioned from vertically integrated, self-contained business units—each with its own functions for purchasing and delivery, product development and production, and sales and marketing—in favor product-centered units

empowered to manage themselves, and focusing solely on order creation and acquisition. For order fulfilment, the new product units contracted the services of an internal supply-chain platform, paying fees for order management, delivery, and invoicing as well as for project-based solutions.

Under the new structure, the supply-chain platform combined specialized skills, consistent activity management, and economies of scale into a common infrastructure for demand fulfilment, with varying speed, quality, and cost specifications set by the product units. Relationship with product units are now governed through service-level agreements that not only cover cost and quality issues, but also incorporate competitive contribution requirements, so that the supply chain and the business units are mutually accountable for customer outcomes. Those terms eliminated the “not my job” mind-set that so many other organizations struggle with—and reduced lead times for order fulfillment by more than 65 percent, at no additional operating cost.

An agriculture company is implementing a similar logic of platform-based services, but went beyond its own boundaries to target external contracts for moving competitors’ products. It boldly set a goal to become a data company through a platform that optimizes the decisions of suppliers and sector peers, enabling them to move product in the supply chain better than anyone else. Joint management of supply chain and IT enables the vision, allowing the quick launch of digital use cases ranging from “sensors on everything” to R&D simulations, advanced analytics for yield optimization and demand sensing, digital enablement of delivery and sales, and new ways to market supplier services. Orientation towards external revenue streams also empowers the supply-chain organization to test innovative solutions and offerings.

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Digital supply chains are already meeting goals that even five years ago seemed unattainable. Now there’s a chance to push even further—at least for those organizations willing to move quickly in testing, learning, changing, and testing again. Fortune favors the brave; digital fortune favors the committed■

This article is based in part on the PhD research that Christian Lennartz has conducted on digital supply-chain transformation at the [WHU Otto Beisheim School of Management](#).

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