Toward an integrated technology operating model

Naufal Khan, Gautam Lunawat, and Amit Rahul

Companies may be able to get digital transformations off the ground by separating digital from conventional IT, but that approach is not sustainable. Here's a better way.

Technology organizations are now expected to play a central role in helping companies capitalize on new digital capabilities—connectivity, advanced analytics, and automation, for instance. These capabilities can help them build deeper relationships with customers, launch new business models, make processes more efficient, and make better decisions.

To a greater degree than before, technology groups must focus on integrating these new digital tools and approaches with existing legacy systems and methodologies—a task that isn't always as straightforward as it sounds. Companies have introduced costly, complicated initiatives designed to deploy digital tools and approaches organization-wide, only to see such programs fall short of their potential or stall completely. The evidence? Rich data sets are accessible only to a few groups of privileged users. Innovative processes used in one business unit are never shared
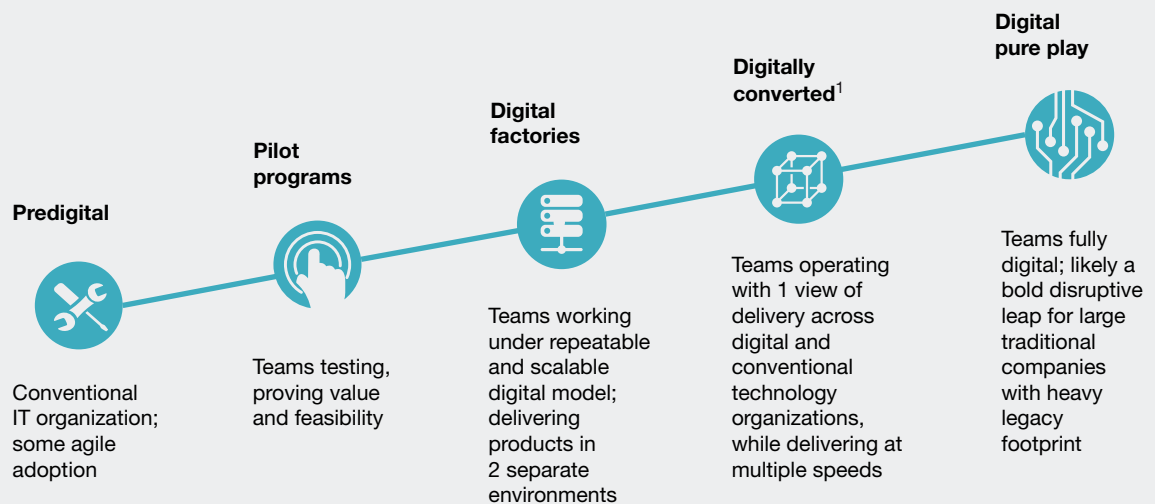
across the company, and the impact of digitization remains small and isolated.

A critical factor in these shortfalls is the lack of a common operating model for digital and IT teams. The digital factory model that most businesses tend to use to launch their digital programs can undeniably speed up a company's pace of innovation in the short term. Skunkworks digital teams working outside the purview of a conventional IT organization can quickly tackle pilot projects that they can then turn into innovative products or customer experiences. For their part, most senior business leaders often decide to stay the course with this approach, with separate digital and IT units adhering to different operating and service-delivery models. They recognize that

a shift to the "pure play" model of digitization pioneered by the likes of Amazon and other Internet companies might be overly ambitious or disruptive in the near to midterm (Exhibit 1).

In our experience, however, at least 60 percent of the highest-value technology projects companies pursue require collaboration and delivery from multiple technology groups across both digital and IT teams. The lack of a common operating model can thwart such cooperation. What's more, fragmented technology stacks can put pressure on overall system stability, scalability, and resilience. The physical split between digital and IT groups can create confusion among business stakeholders about which team is handling which tasks. Even within technology groups

EXHIBIT 1 **Companies' digital programs tend to follow a common evolutionary path.**

Predigital
Conventional IT organization; some agile adoption

Pilot programs
Teams testing, proving value and feasibility

Digital factories
Teams working under repeatable and scalable digital model; delivering products in 2 separate environments

Digitally converted[1]
Teams operating with 1 view of delivery across digital and conventional technology organizations, while delivering at multiple speeds

Digital pure play
Teams fully digital; likely a bold disruptive leap for large traditional companies with heavy legacy footprint
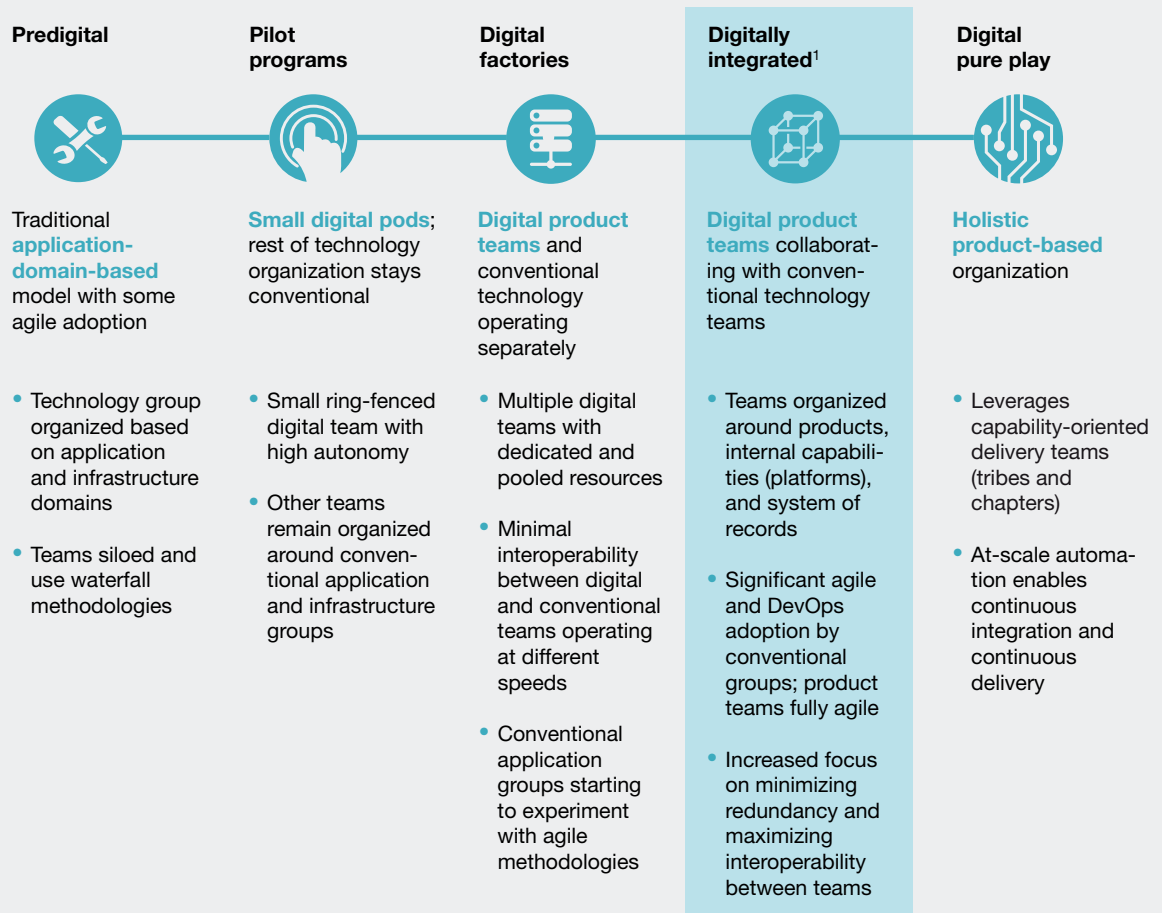
[1]Integrated operating model.

Source: McKinsey analysis

themselves, the culture can become bifurcated as employees identify with either old or new ways of working.

Companies should instead consider shifting to an integrated digital IT operating model in which there is one operating model and one view of how technology capabilities are delivered by both digital and conventional IT groups (Exhibit 2). Under this model, teams organize around technology capabilities rather than specific technology assets and functions, and they often use agile methodologies to speed up the provision of IT services.

Companies should pursue an integrated digital operating model for their technology groups.

Predigital	Pilot programs	Digital factories	Digitally integrated[1]	Digital pure play
Traditional **application-domain-based** model with some agile adoption	**Small digital pods**; rest of technology organization stays conventional	**Digital product teams** and conventional technology operating separately	**Digital product teams** collaborating with conventional technology teams	**Holistic product-based** organization
• Technology group organized based on application and infrastructure domains	• Small ring-fenced digital team with high autonomy	• Multiple digital teams with dedicated and pooled resources	• Teams organized around products, internal capabilities (platforms), and system of records	• Leverages capability-oriented delivery teams (tribes and chapters)
• Teams siloed and use waterfall methodologies	• Other teams remain organized around conventional application and infrastructure groups	• Minimal interoperability between digital and conventional teams operating at different speeds	• Significant agile and DevOps adoption by conventional groups; product teams fully agile	• At-scale automation enables continuous integration and continuous delivery
		• Conventional application groups starting to experiment with agile methodologies	• Increased focus on minimizing redundancy and maximizing interoperability between teams	

[1]Integrated operating model.

Source: McKinsey analysis

According to our research, companies that pursue an integrated IT operating model can realize greater process efficiencies, often through the elimination of redundant roles and initiatives, and they can deliver products and services to customers more quickly.

A plan for integration

The journey toward an integrated model is neither easy nor quick. It can take years to complete depending on a company's starting point and digital aspirations. It therefore requires a commitment from the business and technology groups (both digital and conventional IT teams) to reconsider existing ways of working and collaborate on devising a new path. Business leaders must show a willingness to "test and learn," and technology leaders will need to become active thought partners to the business units.

Organizations will, of course, need to address issues relating to core technology. For instance, they will need to design flexible, perpetually evolving enterprise architectures, with lightweight connections, that can support the development and deployment of new business capabilities. They will also need to develop agile data-management practices—that is, centralizing the collection and storage of data and allowing employees across the company to access critical business information from multiple systems.

Perhaps the most critical changes associated with making a successful shift to an integrated digital IT operating model, however, are those relating to processes and people— that is, rethinking the composition of the technology organization, the methods for providing IT services, and the management of technology talent. Let's take a closer look at these three factors.

Rethinking the technology organization

To successfully pursue an integrated digital IT operating model, companies should reconsider how digital and conventional technology groups are organized and governed: What processes does each group currently follow, and how could those processes be standardized to ease collaboration? What governance structures do they use, and what modifications could be made to improve decision making? Under an integrated model, the digital and conventional teams would jointly pursue the company's digital agenda and may work under a single overall technology leader— likely from the technology group—to ensure accountability at the top. They would also need to take the following steps:

- **Redefine critical roles in technology leadership.** As part of the integrated organization design, companies will need to redefine leadership roles associated with the construction of products—for instance, product managers and designers, engineers, data managers, and IT architects. New roles may be required. Those in existing roles may need to develop new skill sets and areas of expertise. The nature and extent of those redefinitions will depend on a number of factors, including the company's digital goals, its corporate culture, and its existing technology capabilities. Many leadership roles will likely need to become "hybrids"– incorporating both digital and conventional IT perspectives. A large B2C company undergoing integration of its digital and IT organizations created a role under the CIO called head of consumer technology. This individual is responsible for the development of all digital and conventional customer-facing applications regardless of the channel (online, mobile, and stores).

- **Centralize IT-architecture and IT-infrastructure teams.** In an integrated organization, common resources for digital and IT teams, such as technology architecture and infrastructure, will need to be centralized. By combining the teams managing these resources, companies can eliminate redundant tasks, facilitate standardization of processes, and deliver benefits more broadly to the business units. For instance, one manufacturer is convening an end-to-end technology IT-architecture function that would be responsible for making critical decisions relating to both digital and conventional IT assets. Senior leaders believe this new structure will help prevent system proliferation, a perennial issue for the company, and that it will ensure that new technology capabilities are acquired or built based on company-wide needs, rather than according to business-unit or functional needs.

- **Deploy agile, user-centric product-development teams.** Technology staffers should be encouraged to move in and out of cross-functional product or project teams. These self-organizing teams would come together to offer specific customer- and end-user experiences or capabilities and then disband when objectives have been met. The leaders of these teams would work directly with business stakeholders to jointly define priorities and identify areas where technology could significantly enhance business processes. The technology team at an online retailer came up with an idea for enhancing payment processes, and it collaborated with the business team to find funding for the project and to design and build the prototype software that would support the

process change. Pilot tests were mounted quickly, with frequent input from the business, and the full process change was implemented within six months.

- **Revisit funding and portfolio-management processes.** IT organizations' funding and portfolio-management processes would also need significant changes under an integrated model. Staged venture-capital-style funding could be applied to projects that involve both digital and conventional IT team members. Funding decisions for those projects could be contingent upon the integrated teams successfully meeting certain milestones during the development cycle. They could also be tied to business outcomes. Meanwhile, business and technology leaders should jointly review all technology initiatives under way—meeting quarterly or biannually—to ensure balanced investments in initiatives that are critical for supporting day-to-day operations as well as those needed to fuel business innovation and growth. In this way, foundational technology investments, such as the modernization of aging IT platforms, which are nonetheless relevant for supporting end-to-end digital capabilities, wouldn't get lost in all the conversation about cutting-edge technology pilots and experiments.

Rethinking technology provision

IT organizations typically manage three major archetypes of work: purely digital projects (creating a mobile application interface, for instance), purely conventional projects (making enhancements to a mainframe application, for example), or hybrid projects that affect both digital and conventional assets (developing a self-checkout application for in-store customers,

for instance). When digital and conventional IT teams' systems and mechanisms for providing technology support remain separate, hybrid projects may be particularly compromised. Such initiatives can be delayed and deadlines missed when conventional IT teams do not anticipate the number and frequency of changes made by digital IT groups, which are typically operating under the test-and-learn principles of agile development.

An integrated delivery model would ensure joint planning on such projects—involving both digital and conventional IT teams at the very start of the life cycle of a project—which would help reduce delays and create more transparency. Companies could take the following steps to help digital and IT groups find common ground and deliver products and services more efficiently. Some of these actions may seem obvious, but it is surprising how many companies take them sporadically, or not at all.

- **Conduct regular planning sessions** to ensure that digital and conventional IT groups are aware of their commitments to project objectives and deadlines and that all potential risks have been evaluated early on. The IT infrastructure team within a conventional IT group, for instance, could agree to allocate some capacity each quarter to address just-in-time requirements from digital teams (working them in between maintenance tasks).

- **Designate a decision-making body** to help remove bottlenecks for hybrid projects. This is not unlike the job done by a traditional project-management office, which imposes standards and processes to ensure that projects stay on track. Indeed, some companies may choose to rely on

their existing project-management offices to meet this need. But others may install a steering committee of stakeholders from the business units and from digital and conventional IT groups to meet and decide periodically on primary issues and risks associated with hybrid projects.

- **Encourage partnerships among IT-support teams** to address the business units' requests more dynamically. In both conventional and digital IT groups, there are teams whose sole purpose is to support development efforts—focusing on quality assurance, infrastructure management, and production efficiencies, for instance. When these groups adopt an agile mind-set—collaborating early in development phases, for instance, and sharing feedback on product and process iterations—they can reduce the turnaround time expected of them in hybrid projects. One company's digital IT group welcomed representatives from the conventional IT group—members of the infrastructure team—in daily meetings associated with the development of a new web feature. Normally, the digital team would have relied on a ticketing system to communicate with the infrastructure team and set work-flow priorities. Instead, it was able to prioritize and convey its requests directly in the meetings. In doing so, the digital team was able to launch the feature quickly, and service completion time dropped 30 percent.

- **Adopt DevOps capabilities** to reduce digital teams' wait time on components from conventional teams. DevOps is a phrase from the world of enterprise software development used to describe the agile relationship between a

company's software-development and IT-operations teams. The methodology advocates for better and more frequent communication and collaboration between these two groups. Under an integrated operating model, the conventional IT team could use DevOps capabilities to gain easy access to the critical assets needed to automate processes for building, testing, and deploying new products and services. The conventional IT team could make its software code available to the digital team quickly and frequently to match its release cycles, thus increasing the speed of development for hybrid projects.

- **Use microservices** to increase the technology organization's ability to provide cross-unit and cross-application functions. Microservices refers to the development of software applications as a package of independent components, each of which can be deployed on its own or in tandem with others, and each of which runs a unique computing process. Through the use of microservices, conventional and IT groups could take advantage of applications and assets previously available to only one group or the other, and could improve their collaborations on hybrid projects that involve both groups' assets.

Revitalizing your talent strategy

The increasing rate of digitization in companies means nearly every business today must make a radical shift in its talent-management strategies. Companies will need to adapt their cultures in ways that will appeal to both next-generation digital workers, who can bring fresh perspectives and innovation to companies, and conventional IT workers, who often carry with them years of valuable institutional knowledge. Specifically, business and IT leaders should focus on making changes in the following areas:

- **Attracting talent.** Companies will need to evaluate their pools of digital and conventional talent and identify any skill gaps that could hinder the pursuit of their digitization goals. As they begin reaching out to possible job candidates, hiring managers will need to work with recruiters to create tailored roles and customized candidate-vetting experiences. Some companies have established standard hiring archetypes (based on the type of talent being targeted) and then crafted ideal requirements and development journeys for people who fit each personae. Thus, the recruiting and onboarding experience for a developer who is fresh out of college, for instance, would be structured differently from that of an IT architect with more than ten years of experience. Companies may also need to make certain cultural changes to attract a millennial cohort that seems to perform best in less bureaucratic, more innovative environments.

- **Retaining talent.** Companies need to ensure that they have the right elements in place to motivate and retain members of the integrated technology organization. The majority of the technology workforce may perceive digital work to be more desirable, making it difficult to keep conventional IT teams motivated. To keep both sides engaged, businesses may want to establish incentives that reward employees based on the scope of their influence within the technology organization, the impact they are having on business outcomes, and their ability to collaborate across teams. In this way, both digital and convention IT staffers will be motivated to do their best to ensure high-quality customer experiences and successful business outcomes. At

one company, for instance, digital and conventional IT teams jointly created a real-time analytics product that helped to streamline the customer-purchasing experience. Members of both teams were rewarded equally for their success with this hybrid project.

- **Building capabilities.** One of the core benefits of establishing an integrated technology organization is that employees of all stripes, working side by side under one operating model, will gain a greater appreciation of their colleagues' work. They may also find new advantages and opportunities in both digital and conventional areas—thereby expanding the company's talent pool while ensuring the free flow of ideas. Companies can augment this dynamic further by creating skill-development opportunities where expert practitioners can train and coach workers in real-world assignments. Such programs can go a long way toward reducing the cultural friction between the digital and conventional technology groups.

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For those incumbents that are trying to catch up to digital-native companies, digital transformation of core products and processes is essential. But the transformation cannot succeed or sustain momentum when the digital technology group is not integrated with the rest of the technology function. The digital factory model will only take companies so far, especially if they aspire to bring all their technology assets to bear in building innovative customer experiences.

Companies must instead pursue an integrated digital IT operating model. Regardless of the rollout plan, the overarching goal should be to minimize the divide between digital and conventional IT groups, thereby assuring business stakeholders that the integrated teams are supporting common strategic objectives and that they are investing in the systems, processes, and talents that can ensure future success. ◆

Naufal Khan is a senior partner in McKinsey's Chicago office, where **Amit Rahul** is a consultant; **Gautam Lunawat** is an associate partner in the Silicon Valley office.

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