

The CEO's new technology agenda

Technology performance has become critical to business success. Here's how a CEO can focus the technology function on a company's strategic priorities.

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We've seen numerous companies boost their financial performance after their CEOs made it a priority to strengthen the technology function and bring more technology capabilities closer to the business's strategy and operations. Fulfilling this mandate, however, can be a challenge. Most CEOs already have a long slate of priorities, and relatively few feel comfortable enough with technology to push for transformative changes in that functional area. Even CEOs who are attuned to the threat of digital disruption and are thinking about how their companies can create value with digital tend to discount the IT function's importance.

Nevertheless, it's clear from our experience that CEOs can exert a uniquely constructive—and valuable—influence on the IT function. CEOs can do more than other executives to transform the IT function's role, resource model, and core systems, and to bring about the cultural and organizational changes that such transformations involve. In the following section of this article, we lay out the ten questions that CEOs should ask their chief

information officers (CIOs) and management teams to determine how capable their IT function is and how closely it is aligned with the business. We then lay out one CEO's successful approach to modernizing his company's IT function. Together, these insights offer CEOs a guide to shaping a technology function that's fit for the digital age.

The modern IT function: Concepts to know, questions to ask

Based on our extensive work with CEOs and top executives at large companies, three concepts define today's most effective IT functions: a new role that calls for collaboration with the business on strategy and operations; an updated resource model offering the talent, methods, and tools to accelerate innovation; and a future-proof technology foundation of flexible, scalable systems that speed releases of IT products. To help CEOs assess where their companies stand with respect to these three concepts, we've included ten key questions that CEOs can ask (exhibit).

Exhibit

Ten questions can help CEOs determine whether their companies' IT functions possess the qualities that make IT effective.

	Modern IT function	What the CEO should ask to accelerate technology transformation
Role	Collaboration with the business on shaping strategy and streamlining operations <ul style="list-style-type: none"> • Alignment between IT and the business • Targeted technology investments • Advocacy for end users 	<ol style="list-style-type: none"> 1. How are we making key technology decisions at all levels of the company? 2. How do we track and maximize the value produced by our major technology investments? 3. How often do our tech teams seek input from users?
Resource model	Talent, methods, and tools to accelerate innovation <ul style="list-style-type: none"> • Ample engineering talent • Agile working methods • Leading-edge tools • Targeted vendor partnerships 	<ol style="list-style-type: none"> 4. Have we placed high-caliber engineers in IT roles that contribute the most value to the company? 5. How many projects has IT shut down because they weren't providing value? 6. How long does it take for our company to deploy new applications? 7. Which of our IT capabilities do vendors provide, and why?
Technology foundation	Flexible, scalable systems that speed releases of IT products <ul style="list-style-type: none"> • Modular architecture • Enterprise-wide data and artificial intelligence (AI) • Integrated cybersecurity 	<ol style="list-style-type: none"> 8. How much custom development work goes into building new IT solutions? 9. What % of business decisions are we making with help from AI? 10. For our developers, is cybersecurity a hindrance?

A new role for IT: Collaboration with the business on shaping strategy and streamlining operations

Many IT functions have trouble matching their priorities with those of the business. The problem often starts at the top: CIOs aren't included in strategic discussions, where they can shape other executives' thinking on how the business can best use technology. CEOs are ideally positioned to correct this. At the successful companies we know, CEOs have defined a strategic role for the technology function according to the following principles:

Alignment between IT and the business. We're seeing companies make organizational changes specifically to promote seamless collaboration between the tech function and other units and functions. CEOs are adding CIOs to their leadership teams and asking CIOs to report directly to them.¹ Some companies form unified business and technology teams that each support one technology product (for customers or employees) or one IT platform (a component, such as a customer-relationship-management [CRM] system, that supports multiple functions).² CEOs can test for these patterns by asking, "How are we making key technology decisions at all levels of the company?" They'll want to hear that business users and tech experts are working side by side.

Targeted technology investments. Top economic performers are more likely than other companies to develop new digital businesses in addition to digitizing their core business. Both activities require investments in technology. However, the typical company's wish list of technology investments exceeds its technology budget. CEOs must therefore commit their organizations to prioritizing high-value investments. To reinforce this discipline, the CEO should start by asking: "How do we track and maximize the value produced by our major technology investments?" An effective

approach will involve not only measuring the payback from technology investments, but also reallocating capital frequently to promising opportunities—another practice associated with strong economic performance.³

Advocacy for end users. Modern IT functions follow design-thinking practices, by which they develop an in-depth understanding of users' needs as the basis for new products and features.⁴ Such practices should interest the CEO: McKinsey research shows that they're correlated with strong financial performance.⁵ CEOs can probe for them by asking, "How often do our tech teams seek input from users?" If the answer isn't "at every step," the tech function probably hasn't adopted design thinking.

An updated resource model for IT: The talent, methods, and tools to accelerate innovation

In pursuit of cost savings, traditional IT functions outsource much of their development and engineering work and focus on vendor and project management. Modern IT functions, by contrast, value innovation more highly than cost savings, and so they assemble top-notch workers and equip them with sophisticated methods and tools, along with specialized vendor support. To build a resource model that speeds innovation, CEOs should push for the inclusion of the following four elements:

Ample engineering talent. To keep mission-critical technologies ahead of the curve, companies recruit skilled engineers and entice them to stay with quality training and appealing incentives, including nonmanagerial career tracks where engineers can concentrate on technical work without sacrificing the chance to earn manager-level salaries. To gauge the IT function's talent mix, CEOs should ask, "Have we placed high-caliber engineers in enough IT roles that contribute the most value to the company?" A number less than 70 percent is a red flag.

¹ McKinsey research shows that companies with the best-performing IT organizations are more likely to say that their CIOs are involved in shaping overall business strategy. For more, see "Can IT rise to the digital challenge?," October 2018, McKinsey.com.

² Oliver Bossert and Driek Desmet, "The platform play: How to operate like a tech company," February 2019, McKinsey.com.

³ McKinsey research shows that top economic performers divide digital capital evenly between creating new digital businesses and digitizing the core business, and also reallocate capital expenditures more frequently than other companies. For more, see "A winning operating model for digital strategy," January 2019, McKinsey.com.

⁴ "The power of design thinking," March 2016, McKinsey.com.

⁵ Fabricio Dore, Garen Kouyoumjian, Hugo Sarrazin, and Benedict Sheppard, "The business value of design," *McKinsey Quarterly*, October 2018, McKinsey.com.

Successful companies run on flexible, scalable software foundations that let IT teams bring out products quickly and efficiently—a valuable practice for any business.

Agile working methods. Agile working methods produce good results quickly by having technology teams develop starter versions of new products, share them with users, and make round after round of improvements that users want.⁶ CEOs can test IT's agility by asking, "How many projects has IT shut down because they weren't providing value?" If IT hasn't shut down some projects, then the function hasn't truly embraced agile. That's because agile practices call for ending projects as soon as it's clear that they aren't working out—and for celebrating the discretion of the people involved.⁷

Leading-edge tools. Modern IT functions create software and artificial-intelligence (AI) tools that automate routine software development, testing, and deployment tasks, thereby shortening time to market for tech products. They gain more efficiency by shifting systems into the cloud.⁸ To assess their IT functions' tools, CEOs can ask, "How long does it take for our company to deploy new applications?" It should take only minutes, if infrastructure is being automatically configured in the cloud.⁹

Targeted vendor partnerships. Leading IT functions build their expertise and capabilities in areas where they seek strategic advantages and form outsourcing partnerships to obtain capabilities that

are nonstrategic (think "commodity" IT services) or too specialized to recruit for. CEOs can investigate their IT partnership models by asking, "Which of our IT capabilities do vendors provide, and why?" Vendors should provide few if any strategic capabilities—and IT leaders should have a plan for reducing vendors' share of the work to administer or enhance those capabilities.

A future-proof technology foundation: Flexible, scalable systems that speed releases of IT products

Many longstanding companies have a core of aging enterprise-wide applications (enterprise-resource-planning [ERP] systems and the like) running on their own on-premises infrastructure (hardware, such as servers, plus basic software resources). Adding features is cumbersome, and the legacy systems cost a lot to maintain. Successful companies run on flexible, scalable software foundations that let IT teams bring out products quickly and efficiently—a valuable practice for any business. With that practice in mind, CEOs should insist that their companies' IT foundations exhibit the following features:

Modular architecture. "IT architecture" describes a company's assembly of IT systems. Modern architectures consist mostly of compact, self-

⁶ "How to create an agile organization," October 2017, McKinsey.com.

⁷ For more, see Wouter Aghina, Karin Ahlback, Aaron De Smet, Christopher Handscomb, Gerald Lackey, Michael Lurie, and Monica Murarka, "The five trademarks of agile organizations," January 2018, McKinsey.com.

⁸ For more, see Mark Gu, Krish Krishnakanthan, Anand Mohanrangan, and Brent Smolinski, "The progressive cloud: A new approach to migration," August 2018, McKinsey.com.

⁹ For more, see Santiago Comella-Dorda, Peter Dean, Vito Di Leo, Nick McNamara, and Pankaj Sachdeva, "Transforming IT infrastructure organizations using agile," October 2018, McKinsey.com.

contained software components that are linked with easy-to-configure APIs [application programming interfaces] and stored in the cloud.¹⁰ CEOs should make sure their companies have versatile, innovation-friendly architectures by asking, “How much custom development work goes into building new IT solutions?” A well-designed architecture lets IT teams build solutions by repurposing a lot of previously installed software and writing modest amounts of original code.

Enterprise-wide data and AI. Today’s analytics applications give users a detailed understanding of business situations so they can make better decisions. For example, think of segmenting customers into several dozen precisely defined groups, rather than a few broad categories, and precision-marketing to these groups. This approach works only if the company’s IT foundation provides decision makers with AI tools that draw on data from across the business as well as from external sources.¹¹ CEOs can test the penetration of data and AI capabilities by asking, “What percentage of business decisions are we making with help from AI?”

Integrated cybersecurity. To streamline cybersecurity work and make it more effective, modern IT functions follow two practices. They apply lower or higher levels of protection to information assets based on their importance and risk exposure, rather than protecting all assets equally. And they integrate security protections with the software-development process, rather than applying protections after development concludes.¹² CEOs should explore their companies’ cybersecurity programs by asking, “For our developers, is cybersecurity a hindrance?” If so, it might be time to consider the practices described above.

Transforming the technology function: One CEO’s approach

The CEOs we work with agree that their heightened efforts to guide the technology function have paid

off, because so many of their companies’ strategic priorities now depend on technology capabilities. CEOs can’t, and shouldn’t, take over the CIO’s job, but they can use their unique influence to assist with the most valuable aspects of a technology transformation. Setting priorities is key: CEOs and their leadership teams should focus the CEO’s efforts on tech-transformation activities that the CEO is best positioned to lead—particularly, the organizational changes required to promote better collaboration between IT and the business, and to deliver innovative IT products. Here’s a look at how the newly appointed CEO of one healthcare company changed his approach to technology, in close partnership with the CIO, to suit the organization’s strategic needs.

Establishing a strategic role for the technology function

The CEO knew well that technology was profoundly changing how his company carried out crucial activities such as drug discovery and drug development—and that his company’s strategic direction didn’t properly reflect these trends (see sidebar, “A CEO’s technology education”). Working closely with the CIO and the other members of the company’s leadership team, he began by developing a five-year vision for his company that not only laid out a new strategy and business targets, but also redefined the IT function’s role in creating technology capabilities that would support value creation and operational efficiency.

Developing this vision was a different effort from the company’s prior strategy-setting exercises. Rather than creating a business strategy first and then developing a technology strategy to match, the leadership team planned a unified strategy covering business and technology priorities.

The new strategic vision helped the CEO and the management team to recognize that the company would need to transform its technology function. The CEO and CIO turned their attention

¹⁰For more, see Oliver Bossert and Jürgen Laartz, “Perpetual evolution—the management approach required for digital transformation,” June 2017, McKinsey.com.

¹¹Adrian Booth, Jeff Hart, and Stuart Sim, “Building a great data platform,” August 2018, McKinsey.com.

¹²James Kaplan, Wolf Richter, and David Ware, “Cybersecurity: Linchpin of the digital enterprise,” July 2019, McKinsey.com.

to developing a plan for redirecting most of the IT function's efforts to delivering digital and digitally-enabled products and services, as well as technology solutions, that would help the business to greatly lower its operating costs. As part of the plan, the CEO and CIO chose to place extra emphasis on change management. They understood how important it would be to reorient the mind-sets of IT staff toward developing IT products that would be intuitive to use and easy to adopt. Accordingly, they called for new investments in communication and skill building, with a focus on agile, user-centered ways of working. To ensure that the IT function would be well equipped to fulfill its new expectations, the CEO and CIO also called for renewing the company's core IT systems and adding technology talent.

Elevating the CIO

The CEO knew that the organization's business units and functions would achieve their strategic goals only if they aligned their activities closely with those of the technology function. Tech would need to become their partner in pursuing innovations and seeking operational efficiencies. The CEO resolved to strengthen the working relationships between the company's business units and functions and the tech function, starting in the company's uppermost ranks.

The company's previous CEO had established a leadership team consisting of the heads of the company's main business units, the head of

human resources, and the head of supply-chain management. The new CEO added the CIO to this leadership team and invited him to all leadership meetings. At those meetings, the CIO began learning firsthand about the business's aspirations and framing how technology could support progress toward those aspirations.

Joined by the CIO, the leadership team also became a forum for engaging the business in technology decisions and for explaining why certain technology changes were necessary. For example, after the IT department determined that productivity and collaboration would increase if the company consolidated its multiple communication platforms, the IT leader explained the opportunity to business leaders firsthand and sought their support for pursuing it. Together, the leaders developed a plan for promoting the new communications platform and encouraging employees to use it. As a result, employees adopted the new communications platform more readily than they had adopted other new technology tools.

Another important change the CEO made was sharing the company's technology plan with the board. He knew it was unusual for a board of directors to sign on to a technology plan, but he also knew that the company's technology plan would have as much strategic importance as the other plans that the board was accustomed to considering. He also felt that making a commitment to the board

A CEO's technology education

Even before the CEO initiated his company's tech-focused strategic-planning effort, he realized that his personal knowledge of IT wasn't up to the task of leading a tech-powered organization. And so, for six months, the CEO devoted several hours per

week to meeting with IT leaders and staff so he could hear directly from them about the company's technology capabilities, achievements, and challenges. For each get-together, he asked the CIO and other technology leaders to invite the company's

most knowledgeable experts on the topic he wanted to learn about—regardless of their job titles or seniority within the business. These master classes soon brought him up to speed on subjects such as cybersecurity, data management, IT infrastructure, and machine learning.

would motivate him and the leadership team to remain focused on the technology transformation.

Rebalancing technology investments and tracking their business value

Like many a CEO, the chief executive of the healthcare company had risen as a leader partly because of his ability to deliver value, closely monitoring the funds that were being disbursed and the cost savings and revenues associated with those investments. He knew that the company's stepped-up technology program would pay off only if leaders applied the same discipline to tracking its value. The CEO asked his CIO for help devising a system to link technology investments to business value—both the value from selling new tech-enabled products and services, and the operational efficiencies from embedding technologies into business processes.

Tracking investments in IT and the resulting returns proved to be more difficult than the CEO expected. The costs of running core systems and developing new applications weren't consistently divided among business functions. That made it hard to determine which functions were the heaviest consumers of IT services and whether investments were properly divided between technologies to sell and technologies to streamline operations. And when the IT function created new applications or features, business functions didn't always record the revenues or cost savings that resulted from their use.

Nevertheless, the CEO and CIO were determined to try measuring the payoff from at least some tech investments. In one instance, they focused on the technologies that would support a strategic goal of enabling patients to access and order the company's products and services online. A few quarters after setting that goal, executives discovered that IT spending allocated to it fell short of what would be needed to implement all the business-process changes they'd outlined—and was much less than the planned IT spending in nonstrategic areas.

To accelerate improvements in key patient-access processes such as tracking inventory and dispatching supplies, the team reallocated IT

investments toward changes to the patient-access platform and to underlying systems such as ERP. They also set up key performance indicators (KPIs) and objectives and key results (OKRs) to measure how much business value resulted from investments in patient-access technologies.

Once the team could gauge the value of tech features to improve patient access, they began to release additional investments only for features that showed a positive return, rather than funding them with an upfront, no-questions-asked budget allocation. The new investment approach helped the company achieve a 28 percent increase in sales in less than a year and made the software-development process more agile and patient-centric, leading to improved customer-satisfaction scores and a 30-percent reduction in time to market.

Building a world-class tech workforce

As the CEO, the CIO, and the leadership team realigned the tech function with the company's other functions and raised its strategic importance, the CEO realized that IT would need a new resource model as well—a resource model more like that of other functions, which recruited and trained employees to support the business's strategically significant capabilities. Traditionally, the IT function had relied on external vendors to perform software-development projects. IT staff largely oversaw those vendors and managed vendor-created technologies after they'd been implemented. And the caliber of its in-house tech talent wasn't as high as it was for other functions.

The CEO made it one of his priorities to strengthen the tech function's resource model by assembling an in-house cohort of skilled technology workers. He called for hiring dozens of proven engineers and experts in technology disciplines, such as design and user-interface (UI) and user-experience (UX) development, that the company formerly obtained from vendors. He also approved investments in training and on-the-job apprenticeships. Finally, the CEO saw to the creation of incentives that reflected the value of tech workers, along with career paths that would supply them with interesting business problems to work on.

Today, the company's IT workforce has a better appreciation of the company's strategic needs and a stronger association with colleagues in other business units and functions than vendors ever did. Continuity in staffing has been a major factor: tech specialists spend longer periods working with the same business peers than vendor-provided staff, who were frequently reassigned to other accounts. Overall, improvements to the company's tech workforce have increased collaboration between the business and IT, supercharged innovation, and reduced the costs of hiring, onboarding, and training.

The potential for technology to deliver winning business capabilities and change a company's fortunes is simply too great for CEOs not to lead technology's integration with the wider business. CEOs who actively influence and shape their companies' technology functions can position their companies for greater success in an economy where digital savvy is at a premium.

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