



# ENGAGING THE WORKFORCE IN DIGITAL TRANSFORMATION

A NEW MODEL TO ENABLE  
YOUR DIGITAL STRATEGY

# ENGAGING THE WORKFORCE IN DIGITAL TRANSFORMATION: A NEW MODEL TO ENABLE YOUR DIGITAL STRATEGY



As technology advances rapidly, companies across industries are at various stages of digital transformation. Business and technology leaders, front-line employees, and technology vendors all have important roles to play in identifying technology needs, designing solutions, and implementing them effectively.

Our research interviewing managers and employees on the frontlines of the digital revolution in several key industries suggests two clear findings. First, across many organizations and industries, the digital revolution is in its early stages. It has yet to have the profound positive or negative effects that many futurists and technology optimists or pessimists predicted. In one way, this is an advantage, since our second observation is that there are early warning signs that the strategies and processes needed for effective management of technological innovations are not yet well developed in many organizations. Significant changes in design and implementation will be needed if technology is to realize its full potential and improve productivity, generate a favorable rate of return, and improve work outcomes.

Oliver Wyman and Mercer, in collaboration with Thomas Kochan,

a management, work and employment professor at MIT, have identified how to better manage the digital transformation process to improve operations, productivity, and the customer experience. In the past, a sequential approach has dominated, characterized by the divergence between business targets and workforce strategies. Vendors develop products, sell them to Chief Technology Officers or Chief Information Officers through what are often antagonistic negotiations (neither side fully understanding the other), and then managers struggle to integrate the new technology with their workforce to achieve business objectives.

Now, we propose a new integrated model that links the design of a digital strategy with the design of the workforce for the future right from the beginning (see Exhibit 1). The selected case studies emphasize both the expected benefits and key considerations of such an integrated “technology-work design-engagement model.” We feel this new model gives companies a better shot at successful transformation and improving productivity. The examples are selected from various industries, such

as Transportation, Energy, Technology, Insurance and Consumer Goods, in order to illustrate the diversity and relevance of the integrated model for all companies.

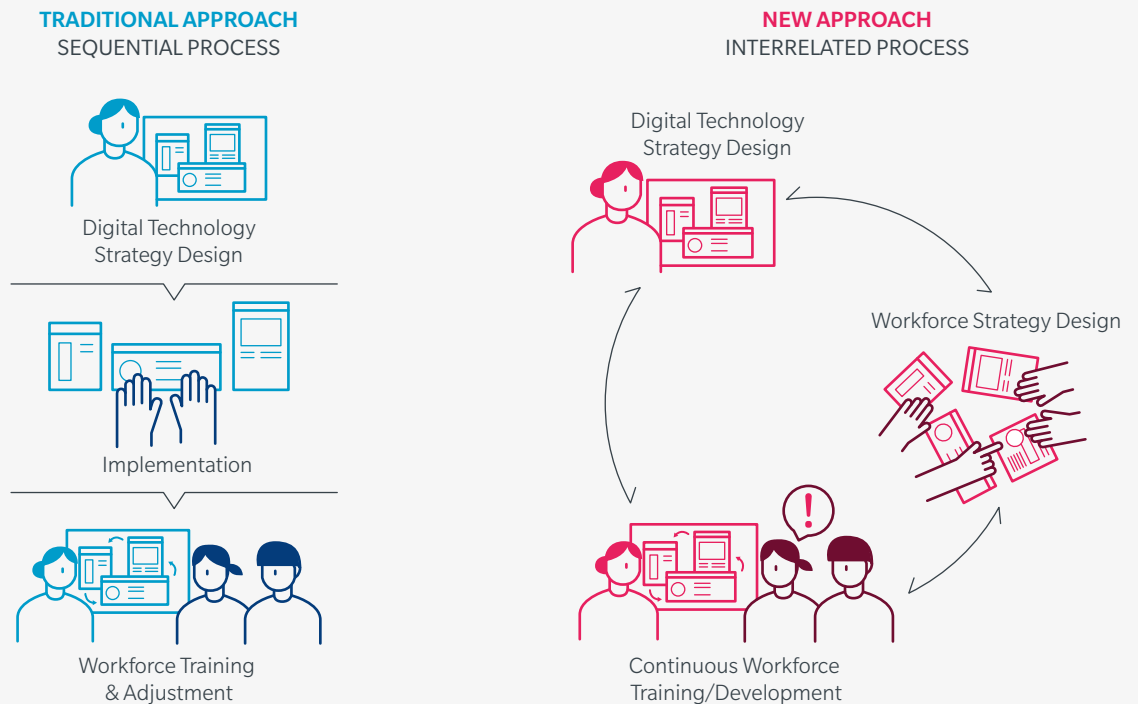
Organizations talk about agility and cross-functional teams, but rarely apply this thinking to engage the workforce in design or implementation. Ideally, the Chief Digital Officer (CDO) is a key enabler of this kind of engagement, assuming he or she has the skills to interpret technological innovation and understand the organizational processes needed to successfully implement technologies. The CDO is in the hot seat, right at the center of the integrative process, but the reality is that in most companies the role is not well defined (see “The Chief Digital Officer (CDO): A Key Enabler of Digital Transformation”).

In the new integrative model, collaborative design—engaging vendors, workers, and managers—merges technical and business knowledge and applies it directly to business operations. Design considerations include work processes, and how technology can augment human inputs.



## DESIGNING THE WORKFORCE FOR THE FUTURE

Exhibit 1: Moving from a sequential workforce strategy development process to a circular integrated process



### Key features

- 1 Sequential process** in order to react to changes in the digital design
- 2 Reactive approach** to retraining and rebalancing the workforce as technology is introduced
- 3 Vendors and top managers** define the technology solutions, and HR manages the workforce adjustments
- 4 Top-down workforce strategy definition** based on employee capacities and business unit alignment

### Key features

- 1 Integrated process** directly relating workforce strategies with business strategies
- 2 Continuous and multidimensional training** to prepare for new technologies and embed optionality
- 3 HR and the workforce** help to define the problem, solution options, and workforce adjustments
- 4 Interrelated workforce strategy development** building on worker engagement

# CONTINUOUSLY UPSKILL THE WORKFORCE

Waiting until a new technology is being introduced to retrain the workforce is too late. Instead, firms that want to be proactive in digitizing operations need to educate and train workers on a continuous basis so they have the analytical and social skills. By that we mean the ability to add value to discussions about how to use digital technologies to improve operations and change work processes, and changing the skills required to work productively with new technologies.

We repeatedly heard from industry experts that training and retraining needs were at best considered late in the development-implementation cycle, and sometimes even an afterthought—or an item for HR to address. In other words, despite the need for talent and digitally savvy workers, reskilling and upskilling of the workforce is currently a blind spot for many companies. There is insufficient advanced training and retraining of the workforce to prepare for technology implementations.

## FUTURE OF WORK CASE STUDY

### Electronic logs in the trucking industry

The trucking industry currently faces challenges related to reskilling. The Federal Motor Carrier Safety Administration (FMCSA) has required a shift from paper logs to electronic logging devices to track driving hours. For widespread adoption and usage of this technology, education and training are a critical first step.

Compliance with the rule has risen in the eleventh hour. In September 2017, just three months before the first deadline in December, an estimated 23 percent of drivers were compliant, compared to an estimated 86 percent as of late January 2018. Adoption rates vary widely, especially based on the type of fleet; longer-haul fleets, for example, tend to be more compliant.

Given last-minute adoption and lack of consistency throughout the trucking industry, training has become a concern. Drivers who received the devices on the eve of the compliance deadline or are catching up to the mandate now may not have had time to learn how to use their device. Some drivers have even quit to avoid learning the new system. Reskilling requires weeks of training, in which drivers must learn how to use the technology, respond to data requests, and explain their devices to law enforcement.<sup>1</sup> Fleets that hire drivers on a part-time basis must learn how to transfer hours-of-service data between their system and those of other fleets.<sup>2</sup> Because of cultural factors in the trucking industry and a late start, many drivers and their employers are learning the technology on the fly.

This is a clear-cut example of the need to begin training before actual implementation of new technologies.

<sup>1</sup> <http://www.ttnews.com/articles/eld-compliance-rises-training-enforcement-still-problematic>

<sup>2</sup> <http://www.ttnews.com/articles/eld-compliance-more-thoughts-key-executives#reader>

# COLLABORATIVE TECHNOLOGY DESIGN

Technology developers and designers must proactively consider and engage the workforce as they build solutions. Whether a solution is built by external vendors or an internal team, it will only fit the needs of the business and the specifications of the user if they have been part of a collaborative-design process.

Sometimes, workers prototype and successfully apply an innovation to perform their jobs more effectively without official awareness or approval. All too frequently, however, workers themselves do not have a say in the design process. Either way, the workers become end-users of new technologies implemented by their companies. Involving them in the design process—and/or supporting them in creating their own innovations—would create more user-friendly, fit-for-purpose technologies.

Eric Von Hippel, a professor of Technological Innovation at MIT's Sloan School of Management, has emphasized the importance

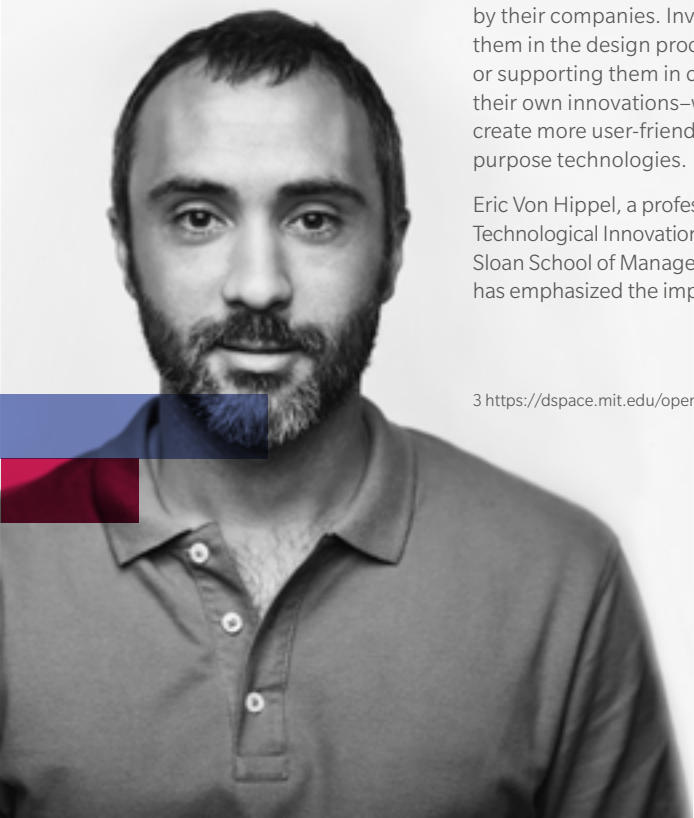
of putting users first when designing consumer products. Beyond surveying users and consumers to understand their needs, he suggests tapping into their understanding of products as a source of innovations. His research found that 6.1 percent of UK consumers surveyed had developed or modified consumer products in the past three years. He argues that this previously unmeasured, untapped source of innovation could prove valuable.<sup>3</sup> In this and other research, he stresses the concept of user-led innovation and suggests that companies identify lead users to contribute to the product design process. They can provide valuable insight to designers and developers – about intuitiveness of the interface, whether duplicative efforts are required of the users, or if any workarounds would be required to complete their tasks.

Many vendors sell process-specific digital products and solutions. Unless business leaders buy with an overarching

technology strategy, the result can be a set of technologies that do not complement each other, leading to coordination and interoperability problems. For those implementing technology in one function, success requires an understanding of interrelated operations and foresight to how the existing technologies will interact with future technology implementations.

These inputs are important for vendors to understand as they begin the design process. Vendors and business executives do not always have the same goals in mind, and end-users are often not engaged in the design process. General-purpose vendors often lack knowledge of industry-specific work processes. This gap in understanding can create resistance and bottlenecks when developing technology solutions. The solution lies in partnerships: between technology vendors and business managers, between humans and machines, and between developers and end-users.

<sup>3</sup> <https://dspace.mit.edu/openaccess-disseminate/1721.1/76350>





## FUTURE OF WORK CASE STUDY

### 800 employees help Cisco to rethink HR

Cisco applied the principles of user-led design in a 24-hour “breakathon” intended to break down and rebuild its HR program. Over 800 employees, 65 percent from HR and the rest from services and engineering, took part in the event, with offices around the globe participating in a “follow-the-sun” manner. Taking inspiration from hackathons, employees split up into small teams to identify problems they had experienced while doing their job and pitch ideas for solutions.

The hackathon resulted in several solutions across talent acquisition, on-boarding, development, and leadership. One such idea resulted in the creation of YouBelong@Cisco, a mobile app that guides new employees and their managers during their initial weeks of work.<sup>4</sup>

Technology development and design work better when they start from an understanding of the end-user. Whether through focus groups, interviews, surveys, or even a hackathon, continued collaboration and testing can bring a strong product to completion.

### Merging technical and business knowledge at “OilCo”

In the Oil & Gas industry, a number of companies have begun to embrace data science, mainly by contracting with vendors, but also by hiring people with technical skills and experience into their organizations. One such company, OilCo, hired data scientists with the aim of building an agile organization that would apply data science to business and operational problems. While the data scientists proved their skill by building real-time dashboards for the business, they struggled to solve problems identified by petroleum engineers.

Even though OilCo created joint working teams of data scientists and engineers, they still experienced a communications breakdown. On the one hand, the data scientists understood the requirements for structuring and analyzing data, but did not understand the petroleum business. On the other hand, the engineers knew the business and were interested in using new techniques, but did not know how to convert their knowledge into data problems. In order for the work to move forward, the data scientists needed to learn more about the business and the engineers needed to learn more about data science. At that point, OilCo was able to facilitate an improved process by which engineers identified issues, structured them as data problems, and worked collaboratively with their technical counterparts as they developed solutions. But, the failure to anticipate and address this communication and knowledge gap earlier cost valuable time, frustration, and considerable turnover among the data scientists before the new solutions started to pay off.

Collaboration is crucial. Beyond creating team structures and channels of communication, companies must ensure that their business and technical employees have a common language. Training can play a role in teaching technical employees about the business, and business employees about technology. Well structured technology implementation programs can also enhance collaboration. Company leaders must ensure that new technologies are not applied in a peripheral way, but are applied in thoughtful ways to the core business. Joint working teams, armed with both technical and business knowledge, and with a mandate to address core business concerns, can build powerful technology solutions.

<sup>4</sup> <https://www.forbes.com/sites/jeannemeister/2016/03/10/the-cisco-hr-breakathon/2/#2646ab774d51>

# AUGMENTING HUMAN INPUT WITH AI

Vendors often focus on technology as a means of eliminating human input and labor. Vendors rarely envision opportunities to use technology to improve processes by augmenting human input. Yet there are many human processes that could benefit from technological innovations, even if the tasks cannot be performed solely by machines.

Consider the use cases in which artificial intelligence (AI) can substitute for human decisions (see Exhibit 2). AI serves as a successful substitute in domains with frequent, structured, and specific tasks. Because AI requires “training,” it works better in areas where there are a greater number of events or data points. Events with more structure and specificity also provide for an easier learning process.

Within the realm of insurance, for example, AI would be suitable for evaluating health claims in countries with standard codes, because those claims are both frequent and structured. Conversely, AI would be less suitable for evaluating health and making decisions on claims for serious body injuries that require more human judgment. In these situations, however, AI might help provide data and information to support human judgment and thereby augment work.

## ROBOTIC PROCESS AUTOMATION (RPA) IN BANKING OPERATIONS

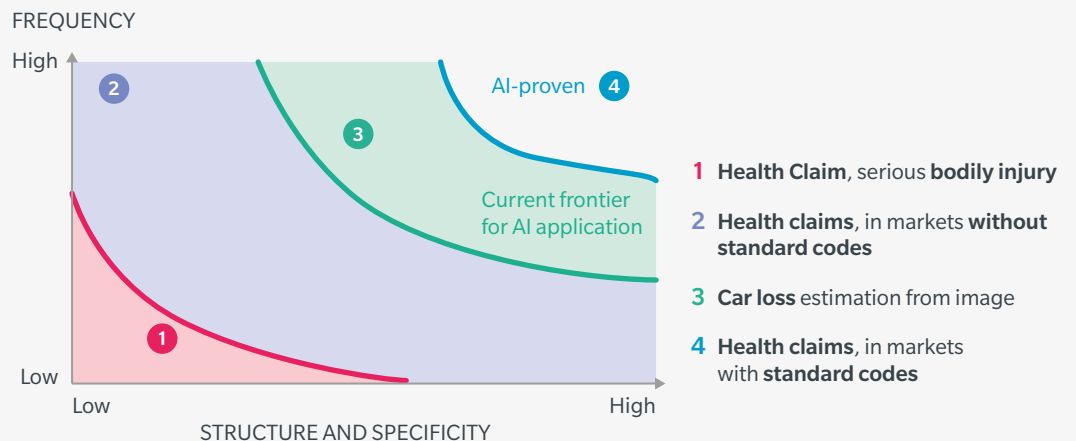
Robotic process automation (RPA) involves the use of software bots for repetitive, rote tasks. The bots function like humans, as virtual users interacting with screens and applications. They primarily perform repetitive, manual, and simple cognitive tasks.

In banking operations, for example, there are a number of repetitive tasks involving data entry and re-entry, particularly for compliance, reconciliation, and accounting purposes. As data volumes increase, it can become prohibitively time-consuming for humans to process it. Thus, RPA is increasingly deployed to free up human capacity from standard tasks and processes, and direct it toward more complex and analytical tasks. And, of course, humans can manage the technology to mitigate the risk of error and intervene in the event of an RPA system breakdown.

In this use case, technology serves as a substitute for tasks and, in some cases, complete jobs previously done by humans. In many settings, technology can also serve as a tool to augment the workforce. As vendors and internal technology developers recognize the importance of creating complementary technologies, they will produce more targeted, useful solutions.

Exhibit 2: Workforce for the Future: Where AI Works

### MATRIX SHOWING FREQUENCY AND STRUCTURE OF EVENTS



# INTEGRATING TECHNOLOGY INTO WORKFLOWS

Tunnel vision often prevents organizations from using technology to revolutionize processes. When organizations implement technology for a particular task, business leaders think little about how other workflows and tasks are affected and could be changed or even similarly digitized. Moreover, because business leaders lack sufficient knowledge of technical platforms on the market, they cannot always envision how technology can help

organizations tackle important problems and core functions. As a result, innovations are often piecemeal or additive, rather than holistic.

HR professionals and other leaders often perceive technology as a means to automate existing processes, rather than a means to shift the way organizations think about a process. Because of this mindset, several industries have missed “obvious” innovations in their processes.

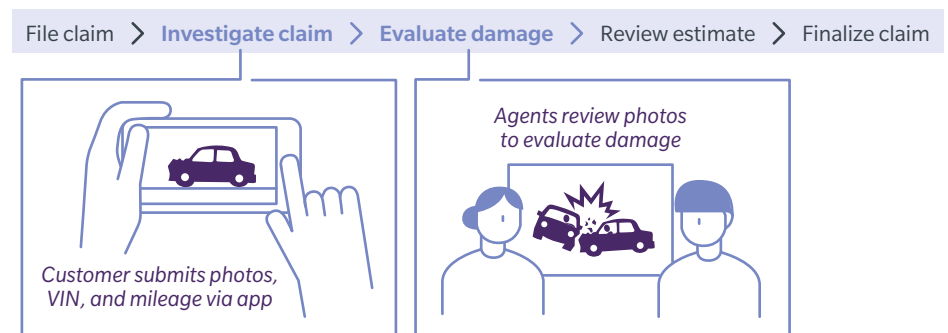
## FUTURE OF WORK CASE STUDY

### Work-process innovation at Allstate

Allstate offers a striking counterexample with its QuickFoto Claim feature, which has dramatically changed its claims process. After a car crash, people instinctively call their insurer to file a claim. In an emotional state, people are unlikely to automatically turn to an app. Allstate understood this human reaction and used technology to upgrade the claims process. When a person calls or otherwise contacts Allstate to report a crash, he or she is directed toward the QuickFoto Claim Feature on Allstate’s app, where one can take and submit a photo of damages. Allstate employees then manually evaluate the damages and make an assessment “on the parking lot.”<sup>5</sup>

Allstate’s innovative use of technology has made the claims process far more efficient and convenient, thus improving the customer experience.<sup>6</sup> The concept has also been converted into a product by Control Expert with its Easy Claims app, which is available for purchase by other insurance companies.

Exhibit 3: Allstate’s streamlined claims process



<sup>5</sup> <https://www.allstate.com/claims/quick-foto-claim.aspx>

<sup>6</sup> <http://www.chicagotribune.com/business/ct-allstate-layoffs-0811-biz-20170810-story.html>





## FUTURE OF WORK CASE STUDY

### Digital recruitment at Unilever

Unilever has applied the integration mindset to its recruiting and onboarding process. First, rather than traditional campus recruitment, Unilever posts targeted job advertisements on social-media sites. Potential applicants who click the job description are brought to a site where they can apply for the job with information sourced from their LinkedIn profile. From there, skill assessment is conducted through a series of online games. Applicants who pass that stage submit pre-recorded video interviews through a website or app. At each phase, AI algorithms screen the applicants and narrow down the pool of potential hires who qualify for an in-person interview. Once hired, candidates can sign their offers digitally, access Unilever's onboarding system, and connect digitally with other recent hires.

From start to finish, Unilever uses digital tools and advanced analytics for recruitment and onboarding. Much like Allstate's innovation, Unilever's digital approach has streamlined their process, shortening it from four months to two weeks, and reduced recruiter screening time by 75 percent. Candidates benefit from a quicker process and also less human bias, as AI has proven to be more objective.<sup>7</sup>

### Digitizing R&D at a global consumer-electronics company

A global consumer-electronics company realized it needed to digitize its Research & Development (R&D) function, as products in its market were rapidly incorporating more digital elements to become "smart" products. To ensure cutting-edge products and a compelling customer-value proposition now and going forward, the company envisioned a sweeping transformation of R&D and product development.

Approaching this challenge with a "full view" of operations, the company created a plan to digitize R&D globally across all product divisions and throughout the entire development, testing, and release process. For each step of R&D and product development, executives considered both the software layers involved and the front-line employees needed for tasks. This allowed the electronics company to assess its gaps, both in terms of technology solutions, and in terms of resources and skills. Only then could a comprehensive plan emerge for digitization, involving system upgrades and integration, changes to project management, new skill requirements, and updated testing at various stages of the R&D and development process.

<sup>7</sup> <https://www.hirevue.com/offers/how-unilever-digitally-transforms-their-recruitment-process>

## THE CHIEF DIGITAL OFFICER (CDO): A Key Enabler of Digital Transformation (or Workforce Engagement)

The new position of Chief Digital Officer (CDO) has been created to design and lead strategic digitization mandates in organizations. There is growing interest across industries to introduce the role to embed required knowledge and skill-sets and address the challenges of digital transformation. Yet, some uncertainty surrounds the role's responsibilities, given inevitable overlaps with duties of the Chief Information Officer (CIO) and the Chief Technology Officer (CTO).

The CIO and CTO are mainstays in the technology space. The CIO has traditionally focused on problems and solutions related to a company's existing technology infrastructure, serving as a facilitator among internal stakeholders. The CTO role is more outward-looking, involved in bringing new technologies in that align with and enhance the delivery of business strategy.

No two org charts or reporting arrangements look the same. For some companies, the CTO or CIO may take on CDO responsibilities as a part of their job. For others, the CDO may emerge as a role with greater independence. Wherever the CDO resides, it is critical for this time of digital transition.

The CDO should be understood as a more evolved role, combining elements of the CIO and CTO roles to achieve a mandate of overarching digital transformation throughout the organization. At Corinium's 2017 CDO Forum in Europe, a major theme was the necessary evolution of the CDO position. While there is still a focus on technical challenges—such as ensuring data quality, uses for data visualization, and specific emerging technologies—a number of sessions focused on organizational trends such as use of agile workforce

practices to adapt technologies to make them more productive.<sup>8</sup> Our vision of the CDO role draws on these ideas.

The CDO will need to be a digital integrator. Beyond extensive technical expertise, he or she must also understand operations and organizational considerations. Such a mix of skills will allow the CDO to approach technology from a design perspective and to convert data into a strategic asset.

Effective CDOs are marked by three key qualities. First, CDOs must challenge whether organizations are asking the right questions and directing solutions toward the right problem. To do so, they must have domain knowledge of the industry and of firm processes. Second, CDOs require technical knowledge in order to select the best technology for their organization. An effective CDO will negotiate with external vendors or internal development staff to design digital solutions that fit with the firm's specific needs. Third, CDOs must manage the change processes involved in introducing new technology. To do so, they must understand how the workforce will interact with the digital technologies, the skills required, and the challenges involved in technology-human interactions.

While business schools and workplaces emphasize the technical skills required for digital change leaders, problem-solving and cultural awareness are equally important skills. Consider that CDOs will need to negotiate with CEOs for budget to pre-train the workforce for digital technologies. Effective CDOs will find ways to change work processes so that technologies augment work, and engage workers to use their knowledge and skills to improve the effectiveness of technologies.

<sup>8</sup> European CDO Forum, 2017

# CONCLUSION

## A NEW HOLISTIC MODEL FOR DIGITAL TRANSFORMATION

Companies benefit from designing and implementing technology in a thoughtful, integrated way that engages the workforce. By involving in the early stages of problem definition and design workers who best understand the processes that can be improved, streamlined, or even eliminated, companies can avoid the changes and bottlenecks that later add costs, reduce continuous improvements, and inhibit user buy-in. Moreover, adhering to sequential technology design-implementation processes—the “old model”—diminishes further innovations that can put technologies to new unanticipated uses that increase an organization’s digital capacities. Plus, leaving end users/workers out of the early stages increases the likelihood that the new digital landscape will widen the gap between winners and losers in the digital transformation process.

Our findings indicate that a successful digital transformation incorporates the following organization, collaboration, and workforce elements in a new, holistic model:

1. The CDO serves as the system integrator and change process facilitator.
2. Sufficient workforce training and investments

are made prior to the implementation process to ensure the workforce has the skills and the cultural willingness to work effectively with digital technologies.

3. Vendors, and internal firm managers and workers, jointly define the problems/opportunities that digitization might address.
4. Design teams consider systemic process changes and changes that can both augment how work/tasks are currently performed, and the changing skills required of the workers who will carry out the tasks that remain after the digital transformation is put in place. This will be a long term, not a one-time, change process.
5. The workers, managers, and professionals closest to the work that will be digitized and transformed are brought into the design and implementation process right from the start. Be cognizant of the Japanese phrase, “it is workers who give wisdom to the machines.”

It is imperative for companies to act swiftly, so that their organization does not fall behind the best collaborative competitors in their industry.



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