

Tech Trends 2022 | Deloitte Insights

Mutual acceleration: Humans + technology propelling each other into the future

A human capital perspective on Deloitte's Tech Trends 2022

The rapid shifts detailed in Deloitte's Tech Trends 2022 aren't taking place in a vacuum. Nor are the equally dramatic shifts in the ways people work. Because the work humans do and the capabilities technology provides are so closely related, it's important to understand their evolution and acceleration as a shared trajectory—people and machines, each shaping the other. This year's Tech Trends include important and rapid shifts in areas such as the ubiquity of data, new cloud architecture, the evolving role of IT, and the proliferation of digital devices—all of which interact in critical ways with the world of work.

This document offers a special perspective on that interaction. By viewing Tech Trends through a human capital lens, organizations can better understand and prepare for the fundamental changes to come. No matter how many technology investments an enterprise makes, their full value can be realized only when humans drive the necessary changes. Case by case, tool by tool, this is a moment to reconsider, re-engineer, and re-imagine.

This is the reason we decided to focus on a selection of the 2022 Tech Trends that feature **mutual acceleration**—technology driving human capital change and vice versa, each fueling the other and enabling the shift from traditional talent models to workforce ecosystems:

- **Data sharing made easy** – organizations are deriving more value from more data in more places. How does that change the nature of decision-making, and how do the resulting job changes and operating models write a new role for technology?
- **The cloud goes vertical** – what happens when highly adaptable IT functions are intertwined throughout the business and IT changes from being a connector to an operational and strategy partner?
- **IT, disrupt thyself** – today every employee is a tech person and every tech person is wired into bottom-line goals. That means teams are becoming flatter and long-held definitions no longer hold sway.
- **The tech stack goes physical** – “working from anywhere” isn’t just for knowledge jobs anymore, and an organization’s digital domain includes physical assets from drones to monitors to robots and the phone in each employee’s pocket. How are devices and work defining each other?

These trends and others add up to a workforce ecosystem we haven’t seen before. In addition to internal talent, this new ecosystem encompasses gig workers, contractors, and ecosystem partners—and it requires a new approach to talent and tech management. The assumptions people bring to it, and the operating models it fosters, have to keep pace.

Workers in almost every role will have an opportunity to move toward becoming “deskless”—not only knowledge workers who measure the day in keystrokes, but even factory workers who may be able to monitor and manage physical machines from anywhere. Is this IT transforming people and their roles? Or is it a new world of work shaping a future vision of IT? The distinction may no longer hold meaning. What’s important is that without human drive, technology can’t deliver the growth and efficiency it promises.

Employers will face critical questions as they navigate these twinned channels of change. When technology and work move ahead in tandem, is every innovation an improvement? What if new technical capabilities serve only to automate inefficient

processes and lock them into place? Does having more apps at work mean that work gets better? Are we prepared to let data drive decisions? Can humans accept machines that are “smarter” than they are? Are humans ready to be strategic problem solvers at scale? Are we able to manage the complexity of infinite systems and workers outside of our internal organizational controls? Just because application development and technology infrastructure have traditionally both lived in IT, does that mean they still should?

Then there’s the well-worn concern about the boundaries between human and machine. It’s becoming more and more clear that technology is less likely to replace people than it is to elevate them—to bond in human-machine collaborations that take the best each has to offer, mutually accelerate each other along a shared trajectory, and create meaningful outcomes neither could achieve separately.

As you explore the trends in this report, consider how each one can shape your organization’s perspective on work and technology. Know the future will demand new standards for learning, expectations, and measurement, for both individuals and teams. There is more happening here than technology change—new ecosystems are coming into being, shaped by the human complexity that accompanies technical complexity. For every shift in the use of data, platforms, and AI, there are corresponding changes in areas like contracts, relationships, or federated management. Technology influences work, and work influences people.

Don’t take any of today’s operating models for granted in a world that will see cloud and technology embedded in work instead of adjacent to it. Be vigilant about the ways privacy and security safeguards may have to evolve to keep up with new practices and capabilities. Audit and evaluate your current use of technology to help establish a leaner, more meaningful starting point.

It’s all happening fast, and speed offers both an attraction and a caution. As work and technology chase each other in a mutually reinforcing pursuit of the new, they have the potential to spiral ever higher together—or to fly off in incompatible directions like children chasing a schoolyard tetherball. What can determine the difference? Vision. Organizations with a comprehensive understanding of this moment are more likely to embrace and unlock the value of technology promise instead of being buffeted by them. These glimpses ahead can help build that understanding and inspire plans for action.



The Trend: Data Sharing Made Easy

A host of new technologies promise to simplify the mechanics of data-sharing across and between organizations while preserving the veil of privacy. As part of a growing trend, organizations are unlocking more value from their own sensitive data while leveraging enormous volumes of externally sourced data through human machine interaction that has traditionally been off limits. This can open up a new arena of data-driven opportunities. Indeed, the ability to share secured data with others within an ecosystem or value chain is giving rise to new business models and products.

Why human capital matters in your data strategy

Data is a means to an end. Machines create and use data to make logical and rule-based decisions, while humans contribute by reviewing insight-level data to make contextual and value-based judgments. Ideally, data can help an organization make fewer decisions, and help people focus on significant ones.

This approach can put machine and human development on parallel paths: more volume and complexity for the machines; more judgment and value-based and value-driving decision-making for the people. As part of this mutually reinforcing evolution, a skilled workforce can unlock the value of data if it brings the right skills to the job. Those skills include ones that relate directly to

handling data, like data engineering, ingestion, and architecture. They also include enduring human capabilities like creativity, imagination, and a deep understanding of core business processes. To drive productive insights, all those components need to work in harmony.

An environment with more data-sharing is one that can benefit from an ecosystem mindset. People will feel less as if they're accessing data and more like they're surrounded by it and can tap into insights to inform their work seamlessly. Along with this data democratization inside the organization, outside sources will also play a role. There will be data you own and data you don't. Because future businesses will run on both proprietary and ecosystem data, outside sources will need to play a role in your decision-making directly, without someone having to copy and re-enter it.

That will take a fundamental shift in your trust model: You'll have to be willing to cede control. Data literacy and upskilling efforts can also help your workforce become fluent in data ecosystems. When they're used to tapping into those resources, information and business decisions can be more tightly integrated.

What's important is that through these changes, humans will have access to information that previously felt unattainable. To connect those new dots and make decisions, humans will first need to envision the art of the possible and then aggregate data. None of this can happen unless people think across company boundaries and resolve to be creative.

Of course, when more data flows easily, concerns about privacy and security follow. So do opportunities for misbehavior. Adding more data can make a process feel more responsive and personalized, but that same use of data can also cross a line into making people feel manipulated. For example, a team in a corporate environment might use data to make workforce decisions like hiring and firing even though they don't have the decision rights to do so under the company's HR protocol. Or a retail customer may feel like a sales appeal is just a little too personal.

Guarding against effects like that calls for tight data governance and data management processes along with data validation and audits. This may create entirely new roles in the ecosystem to drive the necessary checks and balances. From a human capital perspective, that means education on secure and ethical behaviors should develop alongside technical skills.

Case in point

Almost every organization is experiencing this acceleration of data flows in some way. For example, one large pharmaceutical company found that the increase in its data flows, or data democratization, was a large part of the value proposition for moving its data to the cloud. At different scales, this change applies across industries. Today, smaller organizations are moving to incorporate principles of sound data management that were once the province of larger, more complex enterprises. All of this activity requires new skills and a broader understanding of how to unlock the value of increased access to data, as well as the creative space necessary to uncover new insights buried in the flows.

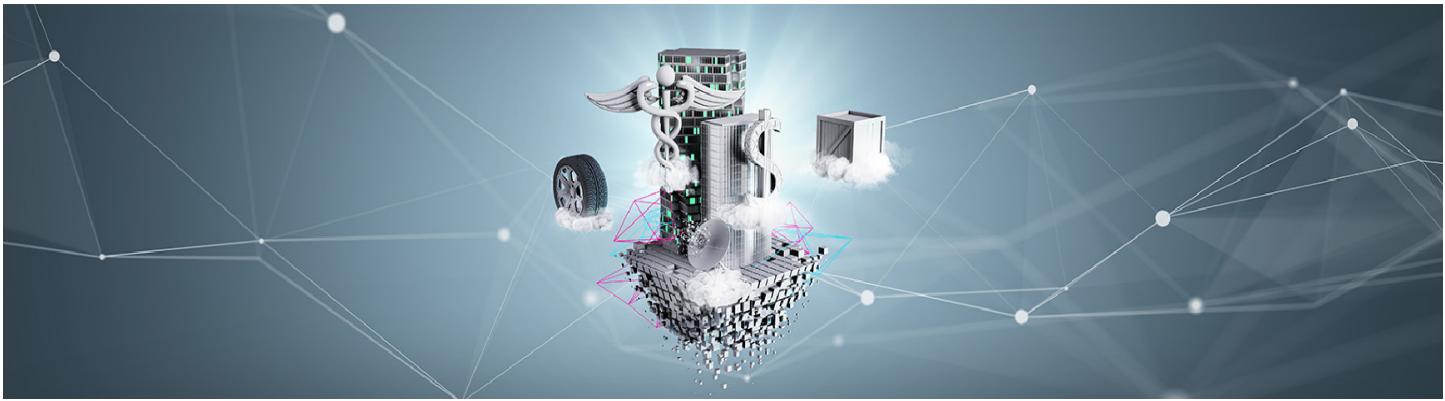
So instead of concrete plans, have a vision, forecast the needs that are likely to emerge, and be ready for anything.

Getting started

Embracing the new data-rich environment will involve both discrete skills and larger cultural shifts. Large parts of the workforce, including those not traditionally tied to IT, will need more data literacy and proficiency in the tools that handle it. But entire organizations will also need to develop data-first cultures that are comfortable with data aggregation, mining, and analysis—most of it automated—as the foundations of decision-making.

A good focal point for automation can be on lower-level decisions that require less human judgment and which may otherwise feature as distractions in a person's workday. That can provide a double benefit, as the technology is put to work in reliable, repeatable ways and the human workforce can run with the output by making higher-level, value-added decisions.

Organizations that want to take advantage of freer-flowing data should also focus on action. It's possible to have new information sources and derive new insights from them, and still remain paralyzed when it comes to making tangible changes as a result. To move past that block, focus on making micro-decisions, embed data-driven confidence into your organization's culture, and be conscious about pairing data with human experience and judgment. The benefits are out there. What will do you to help your workforce unlock the power of data?



The Trend: The cloud goes vertical

The center of gravity around digital transformation has shifted from meeting the IT needs of an industry-agnostic organization to meeting the unique strategic and operational needs of each sector and even subsector. Hyperscalers and SaaS vendors are working with global system integrators and clients to provide modularized, vertical-specific business services and accelerators that can be easily adopted and built upon for unique differentiation. As this trend gains momentum, deploying applications will become a process of assembly rather than creation—a shift that could reorder the entire value stack. Business processes will become strategic commodities to be purchased, freeing organizations to focus precious development resources on critical areas of strategy and competitive differentiation.

Why human capital matters in your tech strategy

Cloud technology is changing the way work is done across the technology function and the business. People within what used to be called IT are partnering with the rest of their organization in different ways, people across the spectrum of job families are being upskilled and reskilled to cloud functions. People in areas like software

engineering, architecture, infrastructure, security, and risk need to be onboarded to new platforms, capabilities, features, and functions. They need to understand the ways these changes affect the ways apps are managed and how work gets provisioned. It's important to understand what legacy skills each team brings to this evolution so teams and individuals can be targeted with the training they need and the learning pathways that will carry them forward. Application teams are working in environments that require new cloud-native skills, with heightened expectations for speed to value. The emergence of vertical and industry clouds is changing the alignment of operating models as well, with implications for human capital: When cloud work is embedded in the product team, the result is a product operating model and a move to "thin tech" with more direct exposure to the business and its opportunities.

Historically, technology has been a value add and connector, and a focal point through which all data had to flow. But today—when each part of the business has its own function-adjacent cloud components and control of its own data—technology must find new ways to add value.

What's the way forward? If the demands of work change technology, technology changes work in turn. The competition for talent shifts, reliance on hyperscalers to provide platforms as a service (PaaS) may grow, and technology has a greater exposure to the business and a greater ability to frame how work evolves. That's because tech is no longer just a value-adding point that data flows through. For many organizations, tech is the business, at the core of your ability to deliver products and services, enable new working styles, and innovate. Today's technologists need to understand business goals and outcomes—and where this represents a change, it's one that has to happen quickly for the organization to win.

To achieve cloud ambitions, some new skills and capabilities will gain importance as others wane. Organizations should architect their cloud strategies with skills at the center, to position themselves for flexibility in hiring, alignment, and rewards. As cloud readiness becomes more important throughout the organization, those that can adapt and adopt talent changes the fastest will win the day. More people in more roles will need to be adept at handling structured

and unstructured data. And compensation may no longer be the most powerful driver to achieve these changes, because today's stakeholders demand transparency from leadership and even excitement from their work instead. The list of relevant roles and skills may be very different a short time from now:

Shifts in the IT workforce		
Illustrative Roles		
Jobs that change	Jobs that disappear	Jobs that are new
Enterprise Architect	Release Manager	Cloud Orchestration
IT Finance	Testing	Product Development
HR Business Partner	Services Managers / Helpdesk	Data Scientists
Testing Orchestration	Tech Architecture	Data Analysts/ Insights
	System & Network Admins	Human Centered Design
	Portfolio Managers	Open Talent Orchestration
	Business Architecture	Virtual Reality Designer
	Project Managers	
	Business / Functional Analysts	

It's likely organizations that turn to vertical clouds will outsource more technology resources but keep functional teams in-house. Because people will have more resources at their fingertips, there may be lower barriers to innovation and new product creation in spaces like this.

Case in point

In its quest to turn the cloud into a catalyst for broad business transformation, one major financial services organization implemented a technology skills taxonomy that was matched to its current and future needs. The goal was to transition to a skills-based talent strategy instead of a function-based one—which not only served the company better in infusing technology across the business, but also helped it differentiate in a competitive technology talent market.

Getting started

Many organizations are amassing useful experience with vertical clouds. The more effective ones are those who bring as much organizational agility to the operating model and workforce implications as they do to the technology ones. Boundaries within the technology function, or between it and the business, are less important now than a product operating model that puts decisions closer to where the work happens.

For those embarking on the journey to vertical clouds, it's important to have an honest assessment of how ready you are to move at speed; how you can align people, performance, and management tendencies to embrace the new capabilities; and what metrics can capture this new pace of performance and innovation.



The Trend: IT, disrupt thyself

Faced with creeping technological complexity and higher expectations of stability and availability, some CIOs are radically reengineering their IT organizations. How? By taking a page from the cloud provider's playbook. They are identifying repetitive, manual processes and applying a combination of engineering, automation, and self-service. The net result is streamlined timelines, accelerated value delivery, and more effective and stable IT across the board. This kind of disruptive automation represents a vast yet underrealized opportunity. Previous technology trends such as NoOps, Zero trust, and DevSecOps share a common theme—the importance of moving to code across the organization. Migrating away from manual administration to engineering and automation, organizations can manage complex systems more effectively and improve the customer experience through improved availability and resilience.

Why human capital matters in your tech strategy

For most of history, humans drove innovation, some of which took the form of technology. Now, technology helps humans drive innovation. In a “no ops” model that flattens IT from a domain of its own to a hierarchy of expertise areas, IT is now distributed throughout the business—where everyone is on the same team, working towards the same goals, measured by the same metrics. Self-service and automation will handle more of the daily work, including but not limited to technology work, changing the fundamental nature of roles required within IT. As part of that evolution, IT specialists shift from service providers to strategic advisors who help negotiate the more frequent touchpoints between work and tech. This altered role is becoming more important, because today every part of the organization requires technology to be part of its solutions, strategies, and ways of working.

If everyone in an organization must be tech-savvy, what becomes of IT and its former role? Work may require IT professionals to speak and act differently. They can still specialize, but as developers they're now more likely to share ownership of a product or project with people in the business units. For example, instead of looking for SAP developers, you may look for people who can attack a given need or problem in a multidisciplinary way. As the partner and supplier network grows more complex, you may need people who can navigate, negotiate, and motivate people to get both the technology results and the business outputs. Managing these teams is more art and experience than science. That will place an emphasis on teamwork, and for human capital, the ability to curate teams effectively. Where infrastructure and on-premises data management skills have long been predominant, analytical skills and the insights they drive will grow more important—as will the ability to put those insights into operation.

While any large-scale shift presents challenges to a workforce, the rise in IT automation also delivers advantages. With data and analytics functions intertwined with business functions, managers

can expect to have better information at hand for predictions and decision-making, with less dependency on legacy architecture and fewer transactional attestations.

At the same time, engineers are developing solutions that support active and regular integration, regular releases, and systems that are resilient – that is, designed not to break, or to identify the break points when they do break. That shift may change, reduce, or even eliminate the roles of some people whose current jobs focus on breaks and fixes. Another downstream shift from automation is that quality engineering becomes a cultural attribute. Think of it the way dangerous jobs and industries think of safety—as an ethic, not just a process. Automation can also foster the expectation that IT must understand business and operations as well as or better than the people that are performing those roles in the business today. If IT lives up to that expectation, it can bring solutions that the business has not even thought of.

As these changes accelerate, providing rewarding collaborative experiences will offer the engagement that discourages skilled talent to jump from job to job. A rise in business partnership, contact with more colleagues, and the need for overlapping skillsets has the potential to improve efficiency, simplify work, and redefine collaboration. Today everyone is a tech worker, and your techiest people aren't necessarily the ones who report to IT.

Case in point

The move toward IT automation and decentralization is having effects in the consumer arena, where shifts are adding to the agility of front-line store personnel, while store operations benefit from more insight into building and utility costs and manufacturers use new analytics to improve speed to market.

In health care, driving IT capabilities into the broader workforce is allowing front-line workers to address both regular clinical needs and COVID-specific needs even with smaller headcounts. Human capital organizations in these settings have more flexible tools to enhance their strategy, planning, and scheduling, and can make more informed decisions on hiring.

Airline and travel organizations are benefiting as well in areas like maintenance and engineering, where a new, flatter interaction model brings IT when and where it's needed. These organizations are using data more precisely to inform where and when they need to deploy their workforces.

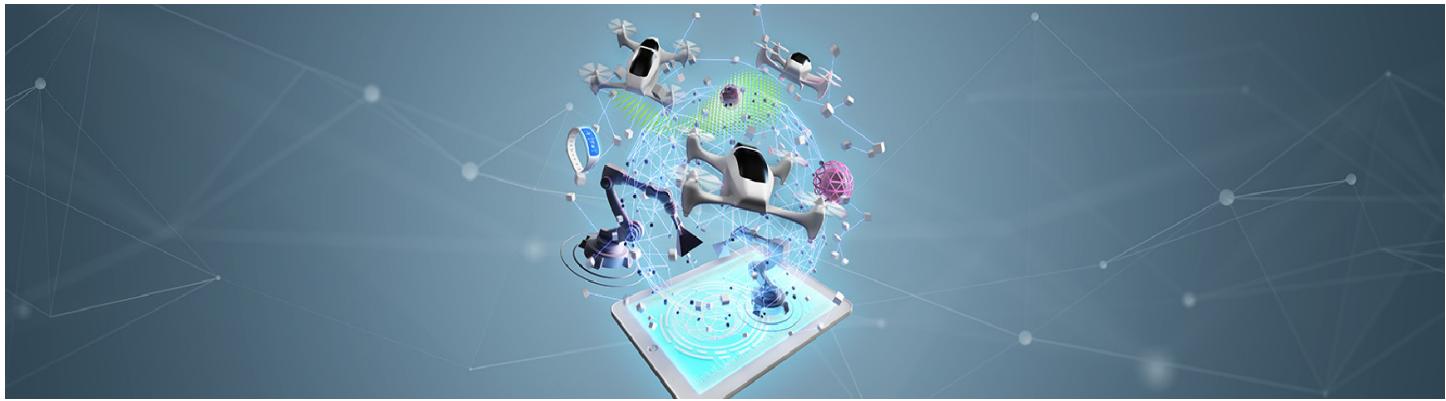
Additionally, a major enterprise cloud computing company experienced these shifts in the ways its clients used its platform. It was originally offered for IT service management, but clients started using it for cybersecurity, HR, and other needs—illustrating the ways different parts of the business are moving to own their adjacent IT functions. The cloud company has attempted to answer that demand with more machine learning-enabled automation and robotic process automation capabilities. And everything the company debuts, it tests internally first.

Getting started

To derive the potential value of automated and self-service IT, many organizations may need to do more to bring learning and development resources to their new tech talent ecosystems. In contrast to traditional training, defined as time away from work, people can grow capabilities incrementally without productivity loss if they work and learn together as they go. Leadership can play a role not only by encouraging this new avenue of professional development, but also by modeling the learning process themselves. Practices like that can help foster purposeful growth, career planning, and experiential learning that expands well beyond the boundaries of IT.

Think of teams in a flatter way: Instead of assembling people for the specific skills each one brings to the table, organizations can foster an environment in which all members of a team have the skills and attributes the whole team needs, and share the collaborative experiences that bring those skills to their full potential.

Parse the DevOps conversation in your organization with an eye toward using human resources effectively. Who will gain skills during this evolution? Who needs to? Technology capabilities are only part of the mix: people will need more rounded skillsets in teamwork, collaboration, strategy, human connections, and the agility to work across domains. On the other hand, people from the business side will need to become more tech-savvy in an environment where they touch technology more often and more meaningfully.



The Trend: The tech stack goes physical

With the explosion of “smart devices” and the increased automation of physical tasks, IT’s remit is growing again, extending beyond laptops and phones. CIOs must now consider how to onboard, manage, maintain, and secure such business-critical physical assets as smart factory equipment, automated cooking robots, inspection drones, health monitors, and countless others. Because outages could be business- or life-threatening, devices in the evolving physical tech stack require the highest levels of system uptime and resilience. And a fresh approach to device governance and oversight may be needed to help IT manage unfamiliar standards, regulatory bodies, and liability and ethics concerns. Finally, CIOs likely will need to consider how to procure needed technology talent and reskill the current workforce.

Why human capital matters in your tech strategy

When technology manifests physically, it has the potential to take away even more of the “three Ds” – work that’s dirty, dull, or dangerous – leaving humans more time for higher-level thinking and strategy, even as there are fewer humans prepared to do so. That can be true even in workplaces where that may seem far-fetched—“work from anywhere” is

no longer just for knowledge jobs. Think of factory workers who can run production machines remotely, or the potential transformation of the trucking industry given drone delivery.

Workers in almost every role will have an opportunity to move toward becoming “deskless”—not only knowledge workers who measure the day in keystrokes, but even factory workers who may be able to monitor and manage physical machines from anywhere. Is this IT transforming people and their roles? Or is it a new world of work shaping a future vision of IT? The distinction may no longer hold meaning. What’s important is that without human drive, technology can’t deliver the growth and efficiency it promises.

That change can drive operational value because machines are resilient, less error-prone, and don’t need to rest. But it can also drive human value, by promoting more effective human-to-human interaction and helping people derive insights and make judgments. If people work alongside a network of supportable mini-machines, the result could also be a boost in productivity and connection: Letting humans be human is the foundation of community-building.

This can happen when organizations match technology investments with equal attention to human-centric and quality improvement considerations. It takes comprehensive thinking to manage, support, and coexist with more pervasive technology, and to make those adjustments sustainable.

There are also potential downsides to a greater reliance on physical technology. Outages or malfunctions can disrupt business or even pose physical dangers to people. For that reason, resilience and system uptime have to be a priority. It’s also important to manage technology systems in a way that upholds trust and roots out bias. The more an organization and its stakeholders rely on smart devices and connected dependency, the greater the potential impact of biases that may be hard-coded into those systems.

Managing human capital in that environment can call for a shift from output-based metrics in favor of outcome-based evaluation, and ways of working that are less transactional and more collaborative.

This shift also applies at the top, where there may be more leading, less managing: To address an issue, for example elevated spending in an area, the tech-powered organization might be more likely to form a team than to hand down dictates.

It's often highly visible when new technologies adapt to the workplace. It's less visible, but more consequential, when technologies change the workplace itself. Devices can help people get out from behind desks or even conduct business from remote locations. The ultimate effect isn't technological, but human: changing the workplace to change the ways people work.

As physical technologies gain prominence in the workplace, organizations will need institutional agility and persistence, as every job will be affected. In the days to come, they may develop parallel divisions among people who get it and people who don't when it comes to adapting to and working with ever-evolving technology. To help people cross those divides will take more resources and education, but the effort can lead to higher job satisfaction and productivity.

Case in point

Technology in the workplace is as established as the telephone or the automatic door. And tools that have become familiar in private settings, such as smart voice assistants, are finding places in enterprise, where they can not only answer questions and carry out commands but also detect tone and sentiment. Every time a device like that goes online, a human spends less time at the keyboard and more time thinking.

Introducing new technologies can have surprising effects on the human workplace. For example, one restaurant brand [installed robot waiters](#) to take orders and bring meals to patrons' tables. For an annual cost of about \$12,000, the robot did much of the work a wait staff member would earn as much as \$30,000 a year or more doing. Did the human servers lose their jobs? No—instead, their tip earnings went up, because the robots freed them to spend more time interacting meaningfully with the guests.

Getting started

A workforce supported by more devices and connectivity can elevate human prosperity while bringing a higher standard of value, precision, and control to what used to be manual labor. But this is also a setting that needs more purpose and guidance. Having more devices in the environment and people's hands may tend to orient a workforce around tasks, but what it needs is a clear and shared sense of what all those tasks are meant to achieve.

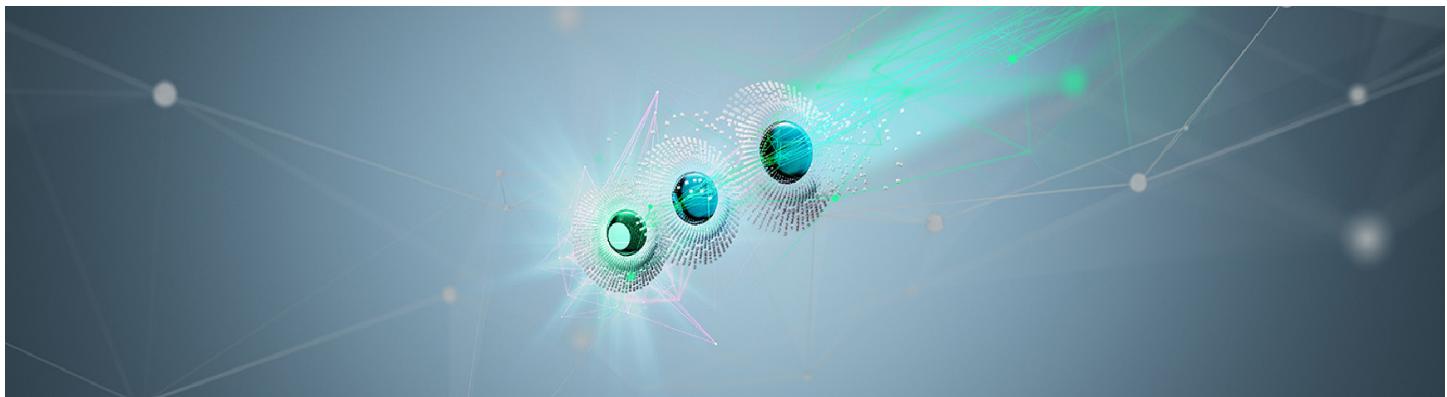
That means the first step is to build organizational purpose for technology, not to start with a focus on tasks. Be clear about organizational objectives. Form teams, point them at problems, and watch them go.

Then, look at changes you've already made, capabilities you already have, and what you can do with them. Meeting the potential of better-equipped technology isn't always about the newest tools in your workplace—because few companies take complete advantage of the technology they already have. What can your current technology accomplish that you aren't taking advantage of? What changes have you already put in place? It can help to take inventory of what you have and audit your use of it. The answers may surprise you. Before the rise of the cloud, for example, some data centers were using significantly less than their equipped capacity, creating environmental and financial inefficiencies.

Once you have a clear picture of where you're starting, slowly introduce new devices at a measured pace—not because they're new and impressive, but because they have a demonstrable link to what you want to accomplish. For each defined goal, put in place the technology and people who can achieve it.

Related thinking:

[Elevating Humans in the Digital Workplace](#) | Deloitte US



The Trend: Field notes from the future

A bold, technologically sophisticated future awaits—this we know. Yet from our vantage point today, we cannot discern precisely what this bold future looks like, or how we can prosper in it. How can we plan for events that are likely, yet vaguely defined? In “Field notes from the future,” we examine the trajectories of three technologies that will likely dominate the digital landscape a decade or more from now: quantum, exponential intelligence, and ambient experience. Though currently nascent, each of these technologies has captured the imagination of researchers and the investment dollars of venture capitalists, startups, and enterprises, who all agree: Something interesting will happen, and with diligence and groundwork planning, we can be ready to act when the future finally arrives.

Why human capital matters in your tech strategy

Are AI and other technologies hastening a future in which people have more time for innovation? One in which it takes less manual labor to keep the world running? Perhaps even a future in which people work on what they love, not just to live? If we’re ever to approach such a horizon, it will first require overcoming inertia—in both the people and the technology.

It’s true exponential intelligence has the potential to add capabilities that were once considered uniquely human and to shift more and more traditional forms of work from humans to machines over time. Machines’ new exponential data capabilities present not only new potential, but also a new challenge, because governing the use of those abilities will take new rules. As more information becomes available, trust and bias will continue to be critical. Choosing what to listen to and what to ignore has massive implications that can have ripple effects or even tsunami effects. Our human decisions are already shaping the systems that will form the core of this future. And as long as humans have imperfections, AI may replicate them—which means we will still need a level of management over both digital and human workers.

The ambient experience of technology is part reality, part promise. We think we’re experiencing early stages of it already, especially in our personal lives. As technologies converge, the lines between human and machine blur, and the Internet of Things (IoT) embeds digital tools in everything we do. But there’s far more to come. Many people are already growing accustomed to working anywhere they want, through a variety of devices, and that flexibility is spreading into different kinds of work where it was previously impractical.

What will work look like when it has no interface as we understand it today? Interactions with visible machines will work and feel differently, and interaction with virtual machines may become so seamless that workers may not even realize they are dealing with machines at all. Even in an environment as defined as an assembly plant, what if workstations and control panels give way to more symbiotic, integrated interaction with machines themselves? Changes in the ways we relate to technology will contain inherent changes to the design of our jobs. Or will it be the other way around? More likely both, and these two forces will meet somewhere in the middle.

Hiring in an advanced technology ecosystem made up of internal stakeholders and external partners is becoming a process of anticipation: You hire people not only for the skillsets they have today, but for the ones you’ll need tomorrow. Not only for technical skills, but also for the human skills that allow people to adapt and

create. As work and talent become more real-time considerations, traditional planning based on anticipating near-future needs will give way to a workforce ecosystem in which the needed talent is ready to come to the table as needed.

Most organizations will depend on these skills, and satisfying that need will take effort. Some will have to brave a tight talent market to hire. Some will need to invest in training, which will elevate the current workforce but also put a premium on retention. Others will have to tap into ecosystem partners to find needed skills. In many organizations, the answer will combine elements of all three approaches. However you approach it, this is a large-scale human capital challenge.

In sourcing and managing this talent, organizations are likely to find the focus has changed. Professionals may identify with peers in their fields more than with peers in their organizations. As a mismatch of supply and demand works to their advantage, sought-after people will have new demands for compensation. Recently, the unemployment rate for tech skills registered 1.7 percent, and for cyber tech skills it was 0.2 percent. In that kind of market, raising salaries is the old school way to fight the new war for talent. One large-scale tech company just doubled base salaries for corporate and tech employees that had already been at six-figure levels to begin with.

The introduction of emerging technology will have direct effects on HR work itself. As rote administrative tasks are automated or eliminated, assistants enabled by AI and natural language processing (NLP) will augment higher-value knowledge work at the same time. To deliver solutions like these, HR will need to be more agile and should consider a new "People Product Op" model.

Because the human capital and talent implications play such a significant part in this next round of digital transformation, HR has an opportunity to lead the enterprise through it. But is HR ready to step up and lead? HR will also face existential questions: Who owns the workforce? HR, or the broader business? How does the HR function need to evolve if the role of humans in enterprise is fundamentally changing? And are we relying more on machines to get work done?

When people and machines augment their capabilities side by side, mission-driven work will involve not people using machines, but teams of machines and people—including more and more people who are not part of a captive employer organization. The human capital task of managing people and machines as digital workers in that setting will have to keep up.

When people collaborate with technology rather than simply using it, some may expect a need for more tech skills. In fact, such a shift will place more emphasis on soft skills. The more technology we have, the more important it will be to be able to work with people.

Case in point

A major cloud services provider has embraced the use of digital assistants in several facets of its human capital operation. Employees can interact with bots to check their time-off balances and schedule absences, learn about their benefits coverage, and learn the status of their paychecks. Managers use them to track tasks and approvals for their teams and to handle hiring and onboarding tasks as well as performance reviews. The results have included thousands of hours a year in saved work.

Getting started

To make the most of emerging technologies, organizations would do well to build resiliency and adaptability into their cultures. The potential of this trend awaits in the future, but the work of benefiting from it starts today.

What should organizations do to start the conversation and craft the vision for the tech-enabled future of talent? Who is responsible for planning and leading the transformation? What are capabilities and talent categories that should be the focus of investments today so they can be the source of value later on? Now is the time for leaders to take stock of these changes and move aggressively to adapt. They need to think about the human capabilities that must stand alongside technical skills. The workforce that lies outside a company's four walls has to factor into talent thinking at every level. And the issues of trust and bias that will accompany these changes can't be left to chance.

Conclusion

We began this examination by calling out critical questions organizations will face as they contend with technology change, human capital change, and the ways those two forces shape and propel each other. Recent Deloitte surveys illustrate this energy at work: CEOs say technology is the largest area of growth they're seeing,ⁱ and they also believe the need for more people and skills is the external factor that will bring the most disruption to their business strategies.ⁱⁱ

Against that backdrop, how can anyone think it's possible to grow technologically without also addressing the people equation? No one can hope to control these dual paths of evolution, but it is possible to understand them and align their paths.

Everything is changing—what work means, what technology is for, and whose job it is to develop, create, and execute. As disruptive as that sounds, it's actually a breaking of old shackles. New opportunities can't help but emerge when tools and information belong to everyone, when teams embody the best of what used to be separate functions of handling data and doing things with it, and when "not my department" falls out of the corporate lexicon.

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As new capabilities emerge, apply them to new ends, not just to faster or more accurate renditions of old routines. Consider that for all the expansion of tools and software, there will be times when less is more—when quality and appropriateness matter more than quantity, as long as real-world strategies are playing out as intended. Make sure that people in business areas who are newly empowered to develop code, apps, and infrastructure have not only the permission and training to do so, but also the reasoning and inspiration to infuse them with purpose and perspective.

These are not increments; we are turning a new page. A new future is unfolding in which people, work, and technology will be less separate and more productive than ever. But of all the things enterprises can automate today, one thing they can't entrust to an algorithm is the task of understanding and managing all these interlocking transitions. The insights organizations need now are the ones that can help tech-empowered workforce ecosystems live up to their new potential—and they'll have to come about the old-fashioned way, through human interactions, imagination, and vision.

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ⁱ2022 CEO Priorities Survey | Deloitte US

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