

Augmented work for an automated, AI-driven world

Boost performance with human-machine partnerships



How IBM can help

IBM partners with clients to address their unique talent goals and challenges, dig deep to understand their workforce realities, and create strategies that unlock new levels of performance inside their business. Together, we help deliver business value and reimagine Human Resources with AI at the core. For more information, please visit ibm.com/consulting/talent-management



Key takeaways

AI is ushering in the age of the augmented workforce when human-machine partnerships amplify productivity and deliver exponential business value.

The AI revolution has reached an inflection point.

Executives estimate that 40% of their workforce will need to reskill as a result of implementing AI and automation over the next three years.

Structuring work strategically is the secret to success.

Organizations focused on evolving their operating model are already outperforming on revenue growth.

Employees are motivated by meaningful work.

Employees prioritize impactful work over autonomy, equity, flexible work arrangements, and growth opportunities.

AI won't replace people—but people who use AI will replace people who don't.

As artificial intelligence (AI) ups its IQ, executives are grappling with the implications for the enterprise. Rapid advancements in AI promise to upend traditional business models—and transform the work employees do every day.

In response, some business leaders are rushing to reorganize, elevating new skills and specialties while deprioritizing those that have become obsolete. Others are focused on hiring, trying to stock up on next-gen talent to close the skills gap. These are appropriate short-term tactics, but they don't address the bigger issue on the horizon: many of the tasks people are doing today won't be needed in the enterprise of tomorrow.

AI and automation are creating a new division of labor between humans and machines. The World Economic Forum (WEF) predicts this evolution will disrupt 85 million jobs globally between 2020 and 2025—and create 97 million new job roles.¹ This radical shift is ushering in a new age. We call it the age of the augmented workforce—an era when human-machine partnerships boost productivity and deliver exponential business value.

Yet, this evolution is also widening the global skills gap. The WEF predicts that 44% of workers' skills will be disrupted between 2023 and 2028—up nine percentage points from its last five-year projection.²

Generative AI could push that figure even higher. A recent IBM Institute for Business Value (IBM IBV) survey found that 4 in 5 executives say generative AI will change employee roles and skills.³ But only 28% of CEOs in our 2023 CEO Study have assessed the potential impact of generative AI on their current workforce.⁴

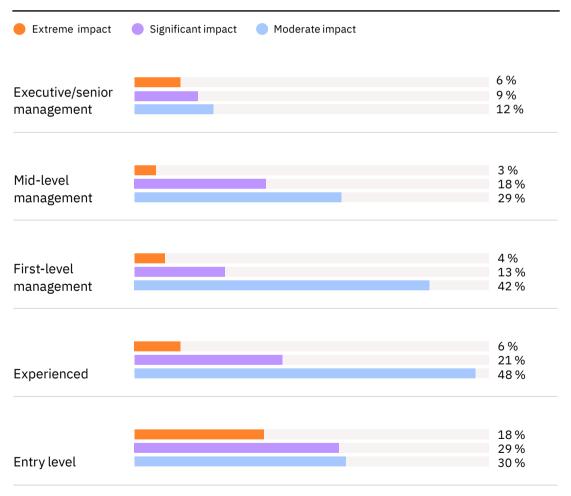
While workers at all levels will feel the effects of generative AI, lower-level employees are expected to see the biggest shift. More than three in four executives say entry-level positions are already being impacted, while only 22% say the same for executive or senior management roles. As AI continues to evolve, its effects will likely intensify across the board, including at the managerial and executive ranks (see Figure 1). No level is immune to the impact. This will force executives to rethink job roles, skill sets, and how work gets done.

FIGURE 1

A shifting foundation

Executives expect generative AI to have the greatest impact on next-gen employees.

Impact by 2025



Q. At which organizational level will job roles be most impacted by generative AI in 2025?

What does that look like, and where should leaders start? To answer these questions, this report draws on two extensive new studies—one with 3,000 global C-suite leaders across 28 countries, another with 21,000 workers across 22 countries (see "Study methodology" on page 26).

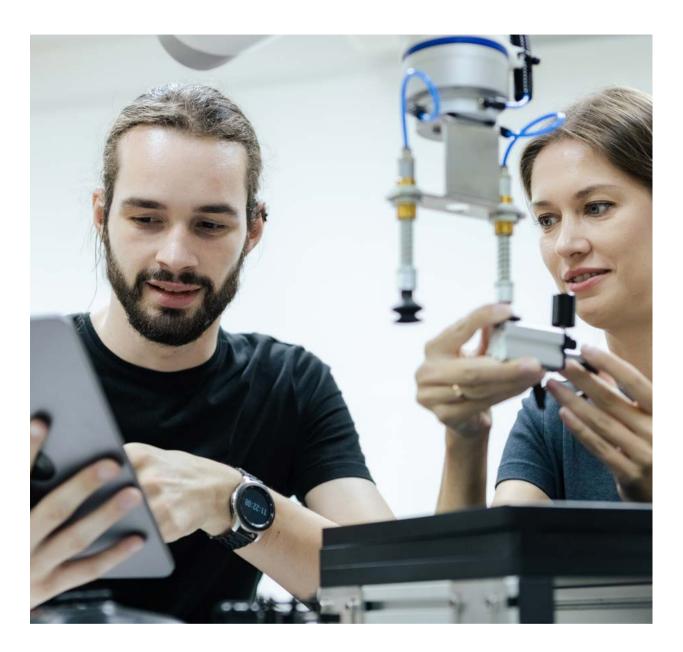
We found that success is often driven by a shift in perspective. In the era of the augmented workforce, executives from top-performing organizations are evolving the operating model to reflect new ways of working (see Figure 3).

Organizations that have revamped their operating model have outperformed their peers by putting new technologies at the core. Rather than simply bolting innovations onto an outdated model, they're breaking the business down to its most essential elements. But many have yet to do the hard work. They're choosing to automate the same activities they've always done, rather than going back to the drawing board to find a better way forward. While small changes may increase efficiency, automating bad processes won't make them better. Instead of retrofitting automation to fit existing workflows, executives must strip operating models down to the studs to deliver real productivity gains.

Based on our research and experience in the field, we've outlined a roadmap that helps executives lead the augmented workforce through a time of change. We've identified three key priorities that can help them elevate employees and gain a competitive edge:

- Transform traditional processes, job roles, and organizational structures to boost productivity and enable new business and operating models.
- Build human-machine partnerships that enhance value creation and employee engagement.
- Invest in technology that lets people focus on higher value tasks and drives revenue growth.

Automating bad processes won't make them better. Break the business down to its essential elements to drive efficiency and deliver real productivity gains.



Perspective

People skills are essential in the AI era

What's the most pressing talent issue facing organizations today? Building new skills for their people.

Executives in our survey estimate that 40% of their workforce will need to reskill due to implementing AI and automation over the next three years. That translates to 1.4 billion of the 3.4 billion people in the global workforce, according to World Bank statistics.⁵

What sort of reskilling? On average, 87% of executives expect job roles to be augmented, rather than replaced, by generative AI. That figure is closer to three-quarters in marketing (73%) and customer service (77%)—and more than 90% in procurement (97%), risk and compliance (93%), and finance (93%).⁶

Intriguingly, STEM skills are plummeting in importance, dropping from the top spot in 2016 to 12th place in 2023.⁷ As the need for technical acumen has increased more broadly, many leaders may now see these skills as table stakes. Looking to the future, executives are more focused on developing people skills, with time management and prioritization, collaboration, and communications topping the list (see Figure 2).

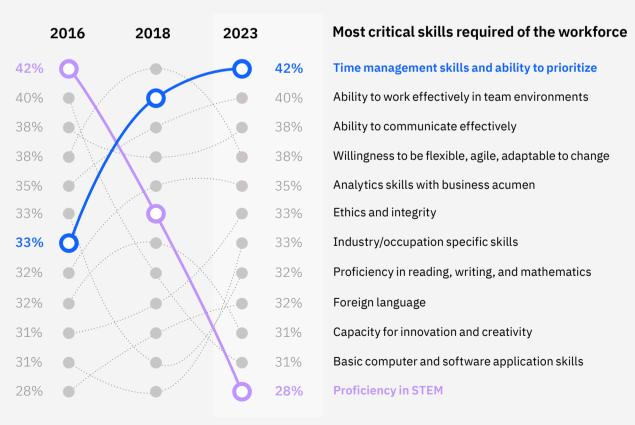
As technology becomes more user-friendly, employees are also able to do more with less advanced technical skills. No-code software development platforms, for instance, let people without a programming background create businesscritical prototypes and apps. Plus, as machines take over mundane tasks, people can spend more time on the problem-solving and collaborative work that require stronger people skills.

This pivot away from STEM skills highlights the volatility of the talent landscape. It's likely that the skills people need will continue to change, which is why organizations must build a flexible structure that allows for evolution. However, many organizations are struggling to identify which skills already exist within their teams. Capturing and maintaining skills across the organization is only the first step. To decide where to build talent—and make internal mobility a feasible alternative to hiring leaders need reliable workforce data. Those that get it right have a lot to gain. Tech adopters that succeed at reskilling to accommodate technologydriven job changes report a revenue growth rate premium of 15% on average compared to other tech adopters, according to IBM IBV research. And the value added is even greater for those that emphasize AI: they see a 36% higher rate of revenue growth than their peers.⁸

FIGURE 2

A new skills paradigm

STEM skills drop in importance as people skills rise to the top.



Q. What do you believe are the most critical skills required of the workforce today?

Sources: 2016 IBM Institute for Business Value Global Skills Survey; 2018 IBM Institute for Business Value Global Country Survey; 2023 IBM Institute for Business Value Talent and Skills Global Survey

Becoming the enterprise of tomorrow

You can't run the enterprise of tomorrow with yesterday's talent. In the same vein, you can't plug tomorrow's talent into yesterday's operating model.

In the era of the augmented workforce, generative AI promises to open the door to new opportunities—if leaders are willing to question the assumptions their business models are built upon. In fact, recent IBM IBV research found that 83% of executives say generative AI will reinvent the way their organization works.⁹

This may be why organizations redesigning their operating model have performed better than their peers. Over the past three years, organizations that view the operating model as the ultimate driver of enterprise transformation have outperformed in profitability, revenue growth, innovation, and employee retention (see Figure 3). Overall, this group outperforms their competition 44% more frequently than the group focused on skills, which performs the worst. In fact, organizations that view skills as the key enabler of enterprise transformation tend to underperform in multiple areas.

What drives this competitive advantage? Leaders are able to adapt their operating model to support augmented work by:

- adopting product-focused ways of working,
- tapping data-driven insights, and
- enabling ecosystem collaboration.

Transforming the operating model can foster business growth, innovation—and an empowered workforce.

FIGURE 3

Transforming the world of work

Organizations that prioritize their operating model as an enabler of transformation outperform their skills-centric peers in multiple dimensions.

Profitability/efficiency	•55% higher performance
Revenue growth/effectiveness	• 4 4 % higher performance
Innovation	• 19% higher performance
Employee engagement	A 3 3 % higher performance

Q. For each of the following, how does your organization's performance compare to that of your competitors over the last three years?

Outcomes define operations not the other way around

Operating model leaders have made more progress in adopting product-based operating models and agile ways of working—meaning teams are given goals to meet, not tasks to complete. Almost one in three (30%) of these outperformers have transitioned their entire organization to this way of working, and an additional 8% have gone beyond the walls of their enterprise to align this process with ecosystem partners.

They also invest in reskilling (57%), as opposed to hiring from the outside (43%), more than all other groups. Rather than staffing up on in-demand skills and figuring out what to do with them later, operating model outperformers are prioritizing purpose and clarity by defining how processes and job roles need to change.

Data fuels transformation

Redefining the future of work starts with understanding how jobs are done today. Enterprise data can help leaders shorten the distance between point A and point B—if they can turn those terabytes into meaningful insights.

Process mining, which uses large data sets from multiple systems to analyze the effectiveness of business processes, can help inform which changes will make the biggest impact (see "Max Mara taps data to streamline operations" on page 11). Recent IBM IBV research found that 65% of executives are already using process mining to improve how work is done in their organizations. Roughly the same portion say they've seen significant improvement in employee engagement, customer satisfaction, and innovation due to process mining.¹⁰ But internal process mining must be used in conjunction with external benchmarking to deliver the deeper insights executives seek. And many organizations still struggle to define benchmarks in a way that translates across the ecosystem. While 75% of executives agree that common definitions are essential for accurate benchmarking, 44% say their organizations lack the common definitions or process frameworks needed.¹¹

Ecosystems enable open innovation

When each organization's purpose and capabilities are clearly defined, leaders can streamline work across the entire ecosystem. This de-duplication lets partners simplify and automate across the network and deliver more meaningful business results. Our study found that 69% of executives say their organization has seen stronger financial results due to its participation in ecosystem partnerships.

Organizations can shrink the skills gap by leveraging their partners' talent, as well. Nearly two out of three executives (65%) say their organization can access more relevant, high-demand skills due to its participation in ecosystem partnerships. And when asked to make tradeoffs, respondents expect innovation and tech talent to be the top two outcomes of engaging with ecosystem partners.

But value does not automatically emerge from ecosystem engagement. Each organization must be clear about where, when—and for how long—they need specific skills support. Ecosystem talent strategies should be data-driven, which makes interoperability essential.

Case study

Max Mara taps data to streamline operations

When customers shop online, they don't want to wait weeks for their order to arrive. But if a company's back-end operations aren't firing on all cylinders, that can translate to delivery delays.

As online orders soared in the wake of the pandemic, Italian fashion company Max Mara knew it needed to address back-end bottlenecks to ensure customer satisfaction. In assessing its options, Max Mara's digital ops team considered traditional process redesign approaches that relied on business intelligence systems and frontline insights from business analysts, process owners, and other stakeholders to get to the bottom of process flow issues.

Max Mara recognized that to improve its order-to-cash processes, it needed the ability to not only identify quickly and accurately where the problems were, but also which fixes would yield the highest ROI. The digital ops team saw advanced process discovery tools as the right approach.

But ultimately, process decisions—whether it's augmenting a job role or automating workflows—require real, actionable data from the processes themselves. By partnering with IBM to address bottlenecks, Max Mara has reduced customer service resolution times by 90% compared with manual approaches and cut average cost per resolution by up to 46%.¹²

Give the people what they want

Bridging the disconnect between executives and employees can boost engagement and bottom-line results.

Automation and AI promise to change the nature of work—and make both people and technology more valuable than they were before (see Figure 4).¹³ But driving growth with the augmented workforce requires more than just clear business goals. Leaders must understand what people really want from their work—and use technology to help improve their experience. This can also require organizations to refresh business values and the code of ethics.

By comparing the results of our employee and executive surveys, we've uncovered insights that executives can use to increase engagement and boost productivity with automation and AI.

Generative AI will augment far more employees than it will replace—87% of executives believe job roles are more likely to be augmented than automated.

FIGURE 4

Powers combined

Human-machine partnerships create more value than either can alone.



The human-machine partnership provides the best of both worlds, offering personalization, foresight, and acceleration



Machines deliver scalability through AI, IoT, and robotics

Source: "The need for a modern, dynamic HR operating model." IBM Consulting.

Embrace experimentation to cultivate change

The human-machine partnerships that will drive advantage tomorrow are being developed today. That means workers need to be willing to experiment with new approaches to understand what works—and tech-savvy enough to troubleshoot along the way.

Employees believe their teams have the tech skills needed to complete their daily work in an evolving landscape—only 21% see a lack of technical proficiency across their team as a major daily challenge. Yet executives cite technological illiteracy as their second greatest talent-related challenge surpassed only by the need to build new skills.

When taken in tandem with the reduced focus on STEM skills, we must dig deeper to get to the root of this technical challenge (see Figure 2). The fact is, digital transformation requires intentional organizational change management. While it's easy to assume that people aren't adopting technology because they don't know how to use it, it may just be that they're resistant to change—and afraid of being replaced.

Executives may be able to spur adoption by showing employees that they aim to add value, not just reduce costs. Leaders can foster a culture of experimentation and innovation by communicating that they're willing to accept a few missteps along the way. A culture of not penalizing failure—an environment of open innovation—provides a 10% revenue growth bump in the context of technology adoption and digital transformation, IBM IBV research shows. What's more, AI users that don't penalize failure achieve a 22% higher rate of revenue growth compared to other AI users.¹⁴

Supercharge middle managers

As organizations develop higher-value human-machine partnerships, job role confusion becomes pervasive. Which tasks require a human touch? What is an acceptable margin of error? And where does responsibility fall if machines—or humans—don't live up to expectations?

Nearly 60% of workers say they're confused about their job roles and reporting structures. But this perplexity is far less acknowledged by executives than employees: only roughly 40% agree that this challenge exists.

To help employees better understand their purpose, organizations need more engaged and responsive middle managers. While reflexively critiqued by "lean" proponents, middle management's unique position on the org chart gives them increased importance in the enterprise of the future. They can help employees navigate the uncertainty around new technologies while also keeping work aligned to strategic goals.

With AI automating many traditional tasks, middle managers can do more leading and less administrating. They can also model the adoption of agile ways of working.

Global CEOs already see the value in this approach. Recent IBM IBV research found that 65% are investing to improve people manager skills and 72% plan to increase their investment by 2025.¹⁵ Yet, our survey revealed that only 41% of organizations have defined new roles for middle managers to serve as coaches for cross-functional teams.

Elevate human employees

Overall, generative AI will augment far more employees than it will replace—87% of executives believe job roles are more likely to be augmented than automated. In this environment, AI has the potential to transform the employee experience. It can automate mundane tasks, letting people focus on what they are passionate about, and create exciting new job roles and career paths.

But employees may think that, by partnering with AI, they are training their replacement. Leaders can combat this initial resistance by highlighting how AI can help people focus on more meaningful work which is something employees crave.

When asked to make tradeoffs, foundational factors such as salary, benefits, and job security still top the list of employee priorities. But when asked to select the most important work attributes out of a list that doesn't include those factors, people put impactful work above all other attributes, including autonomy, equity, flexible work arrangements, and growth opportunities (see Figure 5). Additionally, when asked to select whether the work they do, the employer they work for, or the people they work with was most important to them, nearly half of employees say the work they do is far more important than who they work for or who they work with regularly.

So far, it seems, employers have missed the memo. The executives we surveyed rank impactful work lower than nine other non-compensation attributes when assessing which factors matter most to their workforce.

This disconnect is poised to cause problems as executives rush to automate as many tasks as they can. If leaders don't plan human-machine partnerships with impactful work in mind, they might miss opportunities that will help people work smarter and more strategically (see "IBM HR empowers employees to deliver more value" on page 18). How employees will use—and benefit from—technology needs to be considered as carefully as the tech investment itself.

FIGURE 5

Meaning takes center stage

Employees prioritize impactful work—but executives are focused on other attributes.



Employee Executive

45% 23% Impactful work



38% 44% Autonomy



43% 49% Growth opportunities



38%50%Flexible work

arrangements



38%42%Compensation alignedto performance

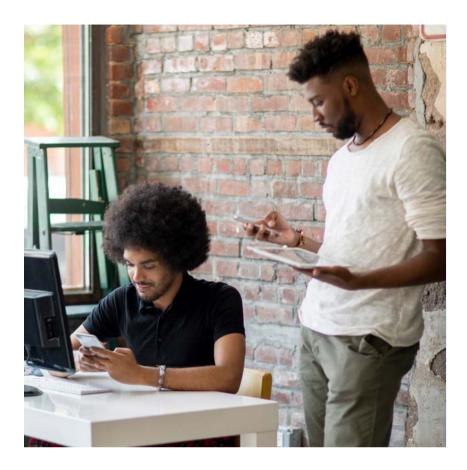


20% 40% Clear performance metrics



16% 25% Experience with latest technology

Executive Q. Which of the following are most important to your employees? Employee Q. Which of the following work attributes are most important to you?



Nearly half of employees believe the work they do is more important than who they work for or who they work with.

Case study

IBM HR empowers employees to deliver more value

What are the key roles people must play in the augmented workforce? And how can HR optimize human-machine partnerships?

Every day, we work with our clients to answer these questions. But few organizations have cracked the code. To anticipate the challenges our clients will face during this talent transformation, IBM HR is blazing a trail that our clients can follow.

But that doesn't mean integrating AI and automation into our daily work has been easy. From creating a next-level digital assistant to streamlining IBM's promotion process, we knew technology could save employees time and make it easier for them to deliver on strategic goals. However, getting the most from AI and automation required pulling data for thousands of employees—stored in multiple massive spreadsheets—into a single, unified system.

With this data in hand, IBM HR was able to use a digital worker to compile employee data into a dashboard that managers could use to assess performance and help employees make progress toward personal goals. The digital worker gives managers the information they need to make smarter, faster decisions—it doesn't make the decisions for them.

Recommendations for promotions and pay raises are always made by people, not machines. And we help ensure those decisions are based on reliable data by aligning with the five principles of AI ethics:

- **Explainability.** We earned and maintained trust by making clear that promotion decisions are made by humans.
- **Fairness.** We applied rules consistently and displayed the same data for each employee.
- Robustness. We guarded against adversarial threats and potential incursions to keep systems healthy.
- Transparency. We shared information with stakeholders in multiple roles to reinforce trust.
- Privacy. We safeguarded data through the entire lifecycle, from training to production to governance.

In one North America pilot, IBM HR saw impressive time savings. We were able to reduce the time it took each manager to nominate employees for promotions from eight hours to one hour—a total reduction of roughly 12,000 hours per quarter. As a result of this success, IBM has started to roll this digital assistant out to other regions—with potential time savings estimated at up to 50,000 hours per year.¹⁶

Automation also reduced the process from 10 weeks to six weeks, which allows the HR support team to focus more on coaching individual managers. Plus, they can now analyze the data from the nominations to provide insights to the wider enterprise. This is a great example of how automation and AI can move humans up the value chain while significantly accelerating decision-making.

Perspective

HR for the augmented workforce: Elevating the value of human-machine partnerships

As AI and automation disrupt how work is done, it will also completely reshape the HR function. Organizations that make HR central to their talent transformation can find quick wins that let them streamline work and boost business performance (see "IBM HR empowers employees to deliver more value" on page 18). But our survey found that more than 60% of executives view HR as primarily an administrative function. They also say business functions are responsible for measuring the value of talent—not HR.

However, there's a lot to gain by asking HR to help define the organization's transformation strategy. When HR leadership and frontline workers co-create guiding principles, they can more effectively foster a culture of responsible AI focused on ethics, trust, and transparency. And defining target outcomes with both business and IT functions can help HR leaders assess how well they are aligning with the business and where they need to evolve.

The principle of employee-centered design, for example, could be tied to the outcome of creating more streamlined technology systems. With this goal in mind, HR leaders can influence conversations about technology investments, pushing the business to prioritize intuitive platforms that unite disparate applications and streamline daily work for employees.

In the age of the augmented workforce, HR also has several opportunities to tap generative AI to improve business results. These include:

- Shifting the role of HR from policy enforcer to value driver. Empower HR to influence tech investments that unite teams across functions and the partner ecosystem.
- Augmenting employees with generative AI to provide more purpose-driven work and enhance employee well-being.
- Making HR the go-to ecosystem advisor to help the organization access in-demand skills rapidly as needs evolve.



Four steps to succeed with people-centric technology

Digital transformation is rife with technical challenges. Moving to the cloud, automating workflows, and adopting AI comes with a whole host of cybersecurity, IT, and data management issues. As leaders tackle this intimidating to-do list, talent transformation often gets bumped to the bottom.

But people priorities can't always be pushed to the back burner. Creating strong human-machine partnerships—and a truly augmented workforce—is necessary to take advantage of the technology that can offer a competitive edge.

A new approach to talent can help organizations integrate digital workers, hybrid cloud platforms, intelligent workflows, and agile ways of working in a way that empowers people to perform at the top of their game.

But to get there, organizations need to do the hard work of real talent transformation. We've outlined four actions you can take to align your tech investments with strategy—while putting people first:

- 1. Prioritize with purpose.
- 2. Lead with the operating model.
- 3. Make work more rewarding.
- 4. Invest in talent as much as technology.

Action guide

Learn how to help your organization navigate the new division of labor between humans and machines.

01 Prioritize with purpose.

- Reassess your enterprise transformation game plan. Baseline current core business processes, skills, and tech investments. Identify what's needed for the future and outline a clear plan to close the gaps. Proactively redesign job roles to reflect the impact of automation and AI.
- Think big, start small. Pilot your plan. Road test new operational approaches in IT where adopting agile business processes and a product mindset may be more widely accepted or even already proven.
 Consider also piloting in HR as a proof of concept for other business functions.
- Boost IT bandwidth. Use artificial intelligence for IT operations (AIOps) to proactively identify and remediate IT issues. This helps employees spend less time firefighting and more time optimizing new business models and ways of working.
- Buy, build, bot, and borrow skills. Use workforce data to determine whether your organization should develop, hire, or automate specific skills or borrow them from ecosystem partners. Increase interoperability to benefit fully from open innovation.

02

Lead with the operating model, not the org structure.

- Align work to the customer experience. Instead of functional teams doing projects, organize people into networks of experts that can be tapped to address customer needs. This shifts the focus from project deadlines to delivering value. Determine whether workers in underperforming functions have the tools and technologies they need to succeed.
- Give employees autonomy. Let teams define their own performance measures based on how they align with the organization's strategic vision. When people set their own goals, they're more inspired to try to achieve them.
- Define end-to-end product workflows. Use process mining to analyze how work is done and where bottlenecks or other inefficiencies exist. Use these insights to rethink and re-engineer operations and identify where AI can take the lead. By reinventing then automating, companies can generate more value and eliminate unnecessary complexity.
- Brace for change at all levels. Be a leader, not a laggard. Don't be afraid of changing your own role.
 Pioneer the use of new tools, including generative AI, at executive and managerial levels in your organization before the competition.

Action guide

03

Make work more rewarding.

- Stay grounded in reality. Reduce nearsighted decision-making by grounding leadership in the employee perspective. Give people a forum to recommend tasks that could be automated to make their jobs easier and more fulfilling. Leverage digital channels to develop a continuous and open feedback loop.
- Give jobs more meaning by making work personal.
 Explain how tasks or processes, if performed successfully, will lead to added value for the individual, the team, and the broader organization.
 Communicate strategic outcomes and progress to every worker involved in a certain initiative—and celebrate wins as a team.
- Develop next-gen leaders. Cultivate an environment where all leaders, including middle managers, are encouraged to model new behaviors. Reward exemplary middle managers who serve as a bridge between their teams and executive leadership.
- Access untapped potential. Enable inner sourcing by building a talent marketplace where employees with in-demand skills, or interest in developing them, can be matched with internal career opportunities.

O4 Invest in talent as much as technology.

- Position re-skilling as an opportunity. De-couple today's work from tomorrow's work and plug in your top talent to tackle emerging tasks. Don't be afraid to call new work "new." Position generative AI skilling as an advancement opportunity for top performers. Don't reskill low performers.
- Tap tech to improve workplace experience. Develop interactive career roadmaps with dynamic prompts to help employees gain clarity on what is expected for them to progress. Career roadmaps with automated or just-in-time features can help employees reach necessary development milestones along the way.
- Deliver just-in-time enablement. Create a talent center of excellence (COE) to define learning and career pathways that are relevant and expertly conveyed. Run the COE as a partnership between business functions and HR.
- Support continuous improvement. Regularly assess the relationship between your operating model and your talent. Challenge executives responsible for specific functions to draw clear connections between job roles and business outcomes.

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Study methodology

The IBM IBV and Oxford Economics surveyed 3,000 global C-suite executives across 20 industries and 28 countries from all major regions in December 2022 and January 2023. We asked how their companies are investing in enterprise transformation, what business value is being generated, and which elements are required to boost productivity, effectiveness, and bottom-line growth. Then we assessed which key talent and technology capabilities are connected to the most successful enterprise transformation programs. The IBM IBV and SurveyMonkey surveyed and assessed over 21,000 workers across 22 countries in December 2022 and January 2023 to understand their expectations and motivations for work arrangements, career mobility, and the overall employee experience.

The IBM IBV and Oxford Economics surveyed 300 C-suite executives across 22 industries in May 2023 to pulse the state of the market, specifically the impact of generative AI on labor today and into 2025.

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