



Extending expertise

How cognitive computing is transforming HR and the employee experience

IBM Institute for Business Value
IBM Smarter Workforce Institute

Executive Report

Talent and Engagement

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Sharpening HR services with cognitive capabilities

Addressing complexity on behalf of employees is fast becoming the new work of human resources. This new priority is driven in large part by the growing need for a workforce that can readily adapt to an ever-evolving environment. Cognitive solutions can help HR professionals in their endeavors to create more efficient ways to interact with employees, provide easy access to insights from vast amounts of data, and deliver information tailored to the needs of the individual. Our recent research reveals key areas where cognitive capabilities can be leveraged in the new HR era.

Executive summary

Today's organizations face increasingly complex workforce challenges. Heightened expectations for a compelling employee experience are combining with the virtualization of the workplace, a growing demand for novel skillsets, and a continuing stream of new technology and data. The HR function has a key role in addressing these challenges. Several evolving capabilities, including cloud, mobile and the Internet of Things (the networking of physical devices such as sensors, wearables and other electronics), are helping guide the ongoing HR transformation. Another important capability, cognitive computing, is emerging and can help improve business outcomes by expanding human expertise and improving decision making.

To better understand the impact of cognitive solutions on the human resources function, we surveyed senior HR executives, CEOs and employees across a range of industries and geographies. As part of a larger IBM global survey of more than 6,000 executives, we asked nearly 400 CHROs about their current views on cognitive computing; we also sought input from employees regarding their willingness to receive guidance from cognitive solutions. (For more information, see the *Study approach and research methodology* section.)

Our research shows that CHROs and CEOs recognize the value that cognitive solutions bring to HR and believe its unique capabilities can address the new talent imperatives; however, most are uncertain how and where to proceed. Our analysis of employee views regarding cognitive solutions reveals a "cognitive sweet spot" – a set of parameters that characterize situations where cognitive solutions will have the greatest impact on employees and organizations.



66% of CEOs believe cognitive computing can drive significant value in HR.



50% of HR executives recognize that cognitive computing has the power to transform key dimensions of HR.



54% of HR executives believe that cognitive computing will affect key roles in the HR organization.

We also identify three areas in which HR professionals are starting to leverage the power of cognitive computing: talent acquisition, talent development and HR operations. This report shows how taking the first steps toward becoming a cognitive HR organization need not be a daunting task. We offer key steps to amplify your transformation by building on your existing investments.

Meet Joe, an employee on a mission

Consider the story of a new employee. Despite his onboarding program, Joe doesn't know where to go for information, resources or support. He wants to meet people and share ideas but doesn't know where to begin. Joe asks a desk neighbor his questions, but she works in a different department and is not much help. Joe's manager is busy preparing a presentation, and the employee service desk hasn't gotten back to him yet. Joe is lost and frustrated.

What if Joe had been welcomed with new hire information on his mobile device that was tailored to his first assignment? What if a chatbot could quickly answer his questions? What if Joe received personalized training suggestions? And what if he were automatically provided the names and contact information for three people he could connect with on his first day? In a cognitive organization, Joe's first experience would be quite different. He would feel connected and confident that he has the right tools to succeed. Joe would be off to a great start.

The evolution of HR continues

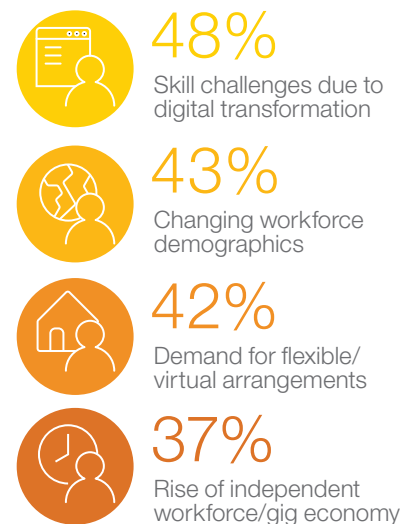
Along with the digital age comes opportunities, challenges and trends that are impacting organizations – and HR functions – around the globe (see Figure 1). Rapidly changing requirements for novel skillsets signal a need for flexible recruiting practices that scour fresh candidate pools. Today's employees must be able to navigate the digital world, which includes accessing and drawing insights from volumes of new data. In addition, the workplace has become global and virtual, driving a need to optimize resources in different geographies. And ultimately, there has been an important shift in the expectations of the workforce; employees demand work experiences that are personal, engaging and authentic.¹

Building on existing HR investments in technology and process, including core HR platforms, cognitive solutions provide an opportunity to improve the overall employee experience, reduce costs, and increase the accuracy and quality of HR services. Cognitive solutions continually build knowledge, understand natural language and use reason to evaluate multiple pieces of information quickly within context. By combining these three important qualities, cognitive computing enables the discovery of new insights to support decision making and boost engagement (see page 4 sidebar: *What can a cognitive system do?*).

The unique capabilities of cognitive systems open the door to a very different approach to HR – one that meets the challenges of today's workforce, benefiting both the organization and its employees. As CHROs focus on transforming the employee experience, cognitive solutions can build on existing HR technology investments to enhance the employee experience, help reduce operational costs and enable the discovery of new workforce insights.

Figure 1

Top trends expected to impact human resources in the next three years



Source: 2016 IBM Institute for Business Value Cognitive Computing Study.

What can a cognitive system do?

Understand: Cognitive systems can receive and process unstructured information in ways similar to humans. They understand language patterns and sensory inputs, including text, pictures and auditory cues. For example, a cognitive system can quickly examine thousands of hours of HR service center recordings to identify key words and patterns based on frequency, tone and sentiment.

Reason: Cognitive systems grasp underlying concepts, form hypotheses, and infer and extract ideas. They rapidly synthesize information to produce relevant and meaningful responses. Consider the case of a manager who is looking to fill an internal role: A cognitive system could look at various data sources, including a candidate's professional experience and previous performance, and then further analyze the candidate against the characteristics of other successful job holders to determine if he or she would be a strong fit for the organization.

Learn: Cognitive systems learn and improve through every data point, interaction and outcome, building a deep and broad knowledge base that is always up-to-date. In the HR world, with a constant stream of changing policies and new regulations, this capability becomes critical. Rather than addressing a static set of rules, cognitive systems read, tag and organize HR content from a variety of sources, allowing employees access to the most accurate and relevant information at any given time.

Cognitive is on the C-suite radar

Our study reveals that the market for cognitive solutions in HR is set to increase notably over the next three years: Sixty-six percent of CEOs believe cognitive computing can drive significant value in HR, and almost 40 percent expect their HR function to adopt cognitive solutions during that time. Business leaders understand that cognitive computing is a critical differentiator in the ongoing war for talent.

CHROs are aligned with their CEOs; more than half recognize that cognitive will be a disruptive force in their industry. In fact, CHROs from our survey identify five key HR challenges that cognitive solutions can address (see Figure 2). Each of these challenges represents an opportunity to impact the bottom line – either through direct measures such as labor cost management and HR process optimization or through indirect means such as time-to-productivity and employee engagement.

HR executives from outperforming organizations appear to be even more aware of cognitive computing's potential value in numerous HR disciplines (see Figure 3). Companies that report higher performance see strong potential for cognitive computing to address new and diverse challenges across a wide variety of areas. For example, more than twice as many CHROs from outperforming organizations recognize the value of cognitive computing in talent acquisition.

Our findings suggest that business and HR leaders recognize that cognitive computing will play a critical role in the future of human resources. However, many emerging technologies fail to reach their full potential because the workforce is either unable or unwilling to successfully embrace them. Given the potential transformative quality of cognitive computing, it's important to assess the willingness of employees to interact with cognitive solutions in their daily work activities.

Figure 2

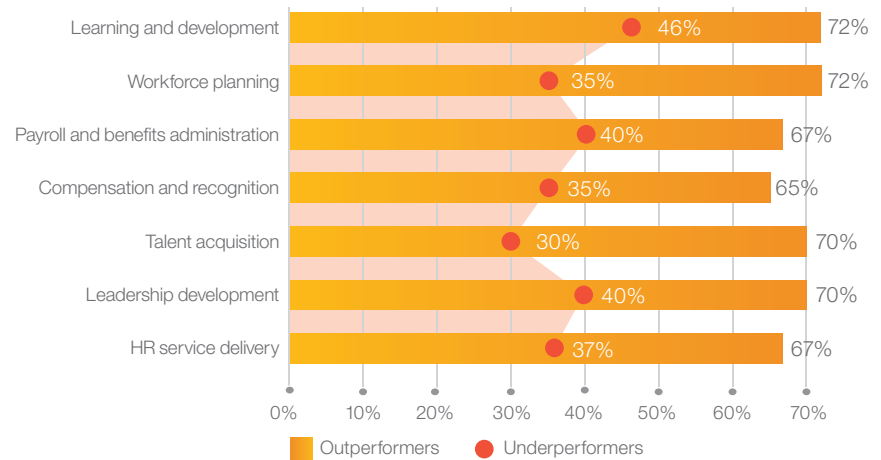
Key HR challenges best addressed by cognitive computing



Source: 2016 IBM Institute for Business Value Cognitive Computing Study.

Figure 3

Belief that cognitive computing can add value in specific areas of HR (outperforming versus underperforming organizations)



Source: 2016 IBM Institute for Business Value Cognitive Computing Study.

Note: Performance groupings were identified through self-assessment, based on criteria including revenue and profitability. Outperformers scored high in both metrics, while underperformers scored low in both.

Does human resources advice need to come from humans?

For cognitive HR to take hold, employees need to be just as comfortable taking advice from cognitive applications as they are from humans. To determine the willingness of individuals to engage with and derive insights from cognitive systems, we examined the responses of more than 8,600 employees to a series of typical HR-related scenarios.

Each scenario described either a cognitive-enabled approach to support a decision – a mobile cognitive chatbot, for example – or a traditional HR source of information, such as an e-mail exchange with a manager (see Figure 4).

Figure 4

Scenarios provided to respondents to gauge readiness for cognitive in HR

	Benefits optimization: Buying extra vacation	As an employee, you have a chance to buy extra vacation but are informed it is unlikely to be approved as many others have already booked vacation. <i>Would you apply for the leave, based on the advice provided?</i>
	Onboarding: New hire support	After one week as a new hire, you feel the need for more support to help learn your responsibilities. You are advised that a new hire webpage contains a lot of useful information. <i>Would you visit the webpage?</i>
	Personal coaching: Voice analyzer	You have an important meeting scheduled with your manager immediately following a client call. After the call, you receive feedback that you seem anxious and should take a break before the meeting. <i>Would you heed the advice and take a break?</i>
	Training: Team training	The business wants to take a more systematic approach to employee training. As a team manager, you are provided a list of training opportunities for team members. <i>Would you share the provided information with your team?</i>
	Selection: Candidate selection	As a hiring manager in a large company, you discover the company's recruitment approach is falling short because it interviews too few candidates. <i>Would you start increasing your candidate list in the future?</i>

Source: 2016 IBM Smarter Workforce Institute WorkTrends Study.

Responses to each scenario include a “desired decision” from an HR perspective. For each scenario, we compared responses across several dimensions including:

- Do employees make the same decisions when advised by cognitive systems versus traditional HR professionals?
- Do employees feel as well informed by cognitive solutions as traditional HR approaches?
- To what extent do workers trust information from cognitive systems versus traditional HR sources?

Our employee research revealed the following:

- *Behavioral intentions:* Respondents indicated they would make similar decisions regardless of whether they received advice from traditional sources or cognitive solutions. This suggests employees are able to glean appropriate information from cognitive systems. Decisions were nearly identical for most scenarios, with the biggest difference in the voice analyzer scenario. When respondents received traditional human advice, 60 percent reported an intention to make the desired decision, compared to 56 percent that reported an intention to make the desired decision when the advice was from the cognitive solution.
- *Information adequacy:* An important question relates to whether there is any informational advantage offered by cognitive solutions. When asked if they had sufficient information, respondents who received information from cognitive systems tended to answer “yes” more frequently (68 percent on average across the scenarios) than respondents given the

traditional advice (64 percent on average across the scenarios). This difference was especially pronounced for more complex decisions, such as whether to buy extra vacation. In this scenario, 58 percent of respondents reported having sufficient information from cognitive, compared to 50 percent of employees in the traditional scenario.

- *Trust*: We also examined the level to which respondents trusted the information they received. Two scenarios showed noteworthy results: the higher complexity vacation scenario and the personal voice analyzer scenario. In the complex vacation scenario, people trusted cognitive more than traditional (58 versus 54 percent). In contrast, in the personal voice analyzer scenario, people trusted traditional more than cognitive advice (68 versus 58 percent). These findings suggest that for more complex and less personal decisions, information received from cognitive applications is considered equally or more trustworthy than information from traditional sources.
- *Intent to reuse*: We asked participants whether they would seek similar advice from the same source in the future. While we observed a stronger tendency for employees to reuse traditional sources for HR advice (average 71 percent), a large percentage still expressed an intention to reuse cognitive (average 62 percent). This suggests there may be a short learning curve as employees build familiarity with cognitive systems and learn to make full use of their features.

Cognitive recruiting: Matchmaker extraordinaire

Forum Engineering is a Japanese company that places engineers into client organizations with specific short- or long-term placement requirements. Its traditional matching process proved slow and inaccurate, and wrongly matched candidates resulted in client dissatisfaction and additional costs. To better serve clients, Forum Engineering used IBM Watson technology to employ a cognitive computing solution that uses natural language processing and cognitive search capabilities. The tool not only analyzes the structured data the company has always collected, but also sifts through unstructured data in internal files to recommend the most appropriate candidates for each position. Now that matches incorporate factors such as personality, skill and cultural fit, vacancies are accurately and appropriately filled six times faster.

The cognitive sweet spot

Our research clearly demonstrates that organizations are primed for cognitive HR, and employees are ready to embrace it in many daily activities. However, there are clear indicators for success, making it important to recognize the “sweet spot” where cognitive solutions will have the most significant impact. Look for scenarios where:

- Decisions are information-rich and highly complex – requiring a wide variety of inputs from different data sources.
- Interactions by users are frequent and varied – where large volumes of requests must be interpreted and addressed.
- High volumes of unstructured information are involved – such as free-form text, images and auditory cues.
- The output is expected to be customized and personalized – to address the individual needs of a global and diverse workforce.

Within the world of HR and employee experience, we identify three areas well suited to the benefits cognitive capabilities offer:

- *Talent acquisition and onboarding:* Cognitive solutions can tap into multiple data sources and reveal new insights to help companies develop richer candidate profiles, position themselves more effectively in the external labor market, and make better decisions about prospective employees.
- *Talent development:* Cognitive insights can lead to more personalized recommendations for learning and career management.
- *HR operations:* Cognitive computing can enable more streamlined and accurate information by equipping and empowering HR advisors.

Talent acquisition and onboarding

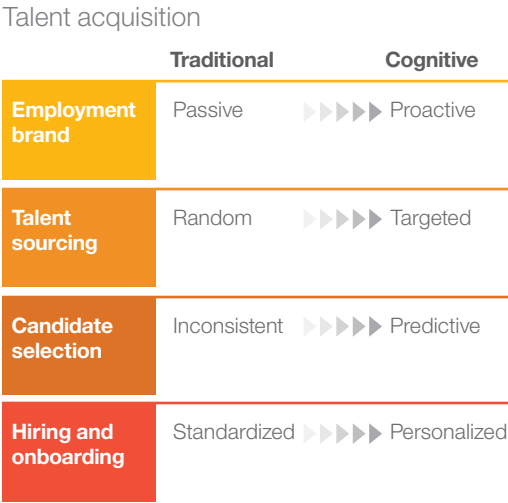
Improving the areas of talent acquisition and onboarding is a priority for the CHRO. Forty-six percent of senior HR executives believe that cognitive technology can completely transform their talent acquisition capabilities, and 42 percent believe it will bring substantial operational efficiencies to this key area.

Consider the role of recruiters today. These individuals are constantly juggling multiple tasks, including managing job requisitions from hiring managers, posting jobs online and with agencies, and identifying passive candidates using social media. They are often required to make a “best guess” when balancing short-term job matching and long-term organizational fit. Supported by cognitive solutions, however, recruiters become marketing strategists and relationship managers who focus efforts on priority job requisitions, optimizing the time to fill critical positions. With cognitive capabilities, candidates from new talent pools can be assessed for fit and skills much more rapidly, allowing recruiters to identify the most qualified candidates (see Page 10 sidebar: *Cognitive recruiting: Matchmaker extraordinaire*). Cognitive solutions can also help organizations leverage the latest social media trend data to assess the employer brand and make changes designed to attract top talent.

The evolution to cognitive-enabled talent acquisition builds and strengthens traditional methods of recruitment across multiple dimensions (see Figure 5): The employer brand matures from passive to proactive, sourcing activities shift from random events to targeted episodes, candidate selection becomes predictive, and the hiring process is truly personalized.

Beyond the recruitment cycle, onboarding is a critical experience in the new employee’s tenure with the organization. Cognitive solutions provide new employees with up-to-date guidance regarding access to benefits, key contacts and other important information

Figure 5
Benefits of cognitive-enabled talent acquisition



Source: 2016 IBM Institute for Business Value Cognitive Computing Study.

Cognitive onboarding: Employee service at your fingertips

In 2016, IBM introduced a cognitive assistant called CHIP for a variety of scenarios such as onboarding new hires and supporting acquired and outsourced employees. It provides employees with a “one-stop shop” knowledge base for HR programs and policy information. CHIP can also be used to send targeted push notifications about required tasks (for example, completing the new-hire checklist, business conduct guidelines or benefits enrollment). By providing reliable on-demand answers to commonly asked queries, CHIP helps enhance the employee experience, improve productivity and reduce HR service costs.

(see sidebar: *Cognitive onboarding: Employee service at your fingertips*). Fast responses to basic inquiries help ease the transition and set a positive tone that, in turn, is reflected in a strengthened employer brand.

Talent development

Talent development is an area of focus for many HR leaders who recognize it’s no longer just about what employees need to know, but also when, where and how the development experience enables performance. Our research revealed that 48 percent of HR executives view the digital skill gap as a critical issue, and 40 percent believe cognitive solutions are well suited to address this challenge. These executives understand that continuous learning is necessary to keep pace with the rapidly changing skills required for today’s workforce. The talent development journey – from learning and skill development to employee feedback – can also be enabled by cognitive systems (see Figure 6).

Figure 6
Benefits of cognitive-enabled talent development

Talent development

Learning	Personalized Individualized content adjusted to employee needs and preferences encourages continuous development.
Careers	Coached Employees receive personalized guidance for inspiring career paths tailored to their interests.
Feedback	Continuous Pulse surveys and real-time social analytics help gauge employee sentiment and guide workforce improvement initiatives.

Source: 2016 IBM Institute for Business Value Cognitive Computing Study.

Look at the role of a manager in a global organization. Today, managers check in with their direct reports as their daily duties permit. They rely on personal experience to determine which employees need attention, coaching or recognition. Career conversations are often relegated to the annual performance review cycle, and training recommendations are prescribed by HR. With cognitive solutions guiding them, managers can have people insights embedded in their dashboards and other daily tools, which will help them guide their teams toward the right learning opportunities. Cognitive solutions that integrate learner needs and critical industry knowledge enable curated learning paths that can be accessed anywhere, at any time, through any channel (see sidebar: *Cognitive learning: It's personal*).

Beyond learning, cognitive solutions also play a role in talent development by helping HR professionals better understand employee sentiment and more rapidly identify emerging issues. Cognitive-enabled systems monitor a variety of data sources, ranging from internal collaboration platforms and employee mini-pulse surveys to external social platforms, and search for potential issues or employee concerns. Coupled with structured information such as sales results and turnover statistics, cognitive systems serve as “canaries in a virtual coal mine,” identifying hot topics and longer-term trends that could affect employee morale and performance.

Cognitive learning: It's personal

IBM faced challenges in managing a training catalogue that remained relevant to its global workforce of over 375,000 employees. Learning content was often out-of-date in an industry with rapidly evolving skills and knowledge needs, and managers struggled to keep up with corporate training programs for their teams. In 2016, IBM introduced Your Learning, an internal tool powered by Watson cognitive technology that provides access to personalized talent development strategies for every employee. The site curates tailored learning based on a user's preferences, job history and career goals. With 30,000 learner transactions a day, Your Learning searches relevant structured and unstructured data from more than 30 internal and external sources to bring together current online content, classroom training and key resources, allowing employees to build knowledge anytime and anywhere.

Cognitive HR: Any way you like it

A large, global consumer products company wanted to reduce time spent on complex calls to its HR service center, as well as improve overall employee satisfaction rates with the HR department. It recognized that employees expect a frictionless interaction on the channel of their choice, supported quickly and effectively by service desk advisors. The company introduced a cognitive solution, powered by Watson technology, which provides omni-channel access to the service desk. The solution seamlessly integrates and synthesizes information to extend and augment the advisor's expertise, allowing for more timely and accurate responses. A 25 percent improvement in employee satisfaction with the HR service center was reported after just one month.

HR operations

In the HR back office, processes change on a regular basis: New benefits are introduced, travel regulations are adjusted, and expense controls are redefined. Our research shows 39 percent of CHROs believe their HR processes are overly complex and could benefit from the introduction of cognitive capabilities.

Today, an employee navigates the company intranet to locate information about HR policies, relies on a manager to obtain guidance related to vacation eligibility, and calls the contact center to follow up on expense queries. Each channel provides support in a different way and often with inconsistent results. Enter the cognitive agent. Using natural language processing capabilities, a cognitive solution that serves as a virtual agent absorbs employee requests through a variety of channels. By rapidly tapping into myriad data sources – from employee manuals to external provider databases – it provides answers to even novel questions. And in situations where employees do access the contact center, cognitive-enabled systems empower HR advisors with faster, more accurate information than they could get using traditional systems, better equipping them to respond (see sidebar: *Cognitive HR: Any way you like it*).

Optimizing traditional HR operations with cognitive capabilities helps reinvent core processes and improve decision making among HR professionals (see Figure 7). Payroll administration is streamlined with compliance updates and reduced runtimes, while workforce administration benefits from intelligent automation of complex data management. Existing shared service center advisors empowered by cognitive guidance can deliver even better employee experiences, and workforce analytics is enhanced through scenario modeling.

Figure 7*Benefits of cognitive-enabled HR operations*

HR operations

Payroll	Streamlined Insightful compliance updates and real-time analytics can limit exception processing, helping reduce runtimes and costs.
Workforce administration	Automated Intelligent agents can process complex data management tasks, helping improve accuracy.
HR shared service centers	Empowered Cognitive call guidance can improve issue resolution and employee experiences.
Workforce analytics	Optimized Scenario modeling can identify best skill mix, hiring targets and location options.

Source: 2016 IBM Institute for Business Value Cognitive Computing Study.

Beginning your cognitive HR journey

Taking the first steps toward introducing cognitive capabilities to your organization need not be a daunting task. Here are recommendations for how to begin:

Consider how cognitive will strengthen your HR transformation

Cognitive capabilities amplify existing investments across HR, including core HR platforms and other cloud-based applications. For example, in talent acquisition, consider how a cognitive system might better predict new hire success by examining candidate data in combination with your organization's internal performance metrics and competency frameworks. In talent development, look at how cognitive applications could fortify your learning management system to help guide learners toward up-to-date information aligned with the strategic priorities of your business. Finally, in HR operations, determine how employee self service could benefit from a mobile chatbot that interacts naturally and on demand.

Start simple, but start smart

Deciding where to begin with cognitive computing can seem formidable. Consider which cognitive capabilities are best suited for the problems you want to solve. Natural language processing capabilities are valuable in situations where repetitive interactions with the employee population are required, while the ability to interpret tone is a valuable asset for managers and leaders. Consider the cognitive "sweet spot," which involves situations where decisions are information-rich, highly complex and frequently required by employees. Focus on opportunities that will benefit from novel insights, incredible experiences, enhanced expertise or intelligent processes. Build an interdisciplinary team to co-create solutions with a broad selection of your user population.

Understand the possibilities of your data

Because cognitive systems excel at uncovering insights from sources once unsearchable, traditional text-based data can be augmented with sensory inputs such as natural speech and images. Unlocking the potential for differentiated insights requires understanding the data you possess, as well as data outside your firewall and data yet to come. When asked which data sources would be most important for use in cognitive solutions, HR executives from our survey identified external labor market sources (46 percent of respondents), internal HR data (46 percent) and employee competency models (45 percent) as the top three.

Build trust and engage people

Understanding the implications of the integration of people and machines in the workplace must be an essential part of your cognitive journey. Over half of the HR leaders we surveyed recognize that a wide variety of HR roles, ranging from senior executives to the employee service center, will be impacted. Consider the far-reaching implications, including the anticipated need for reskilling and potential job redesign. Preparing people for new ways of working with technology is a foundational step; adapting processes, content and roles helps pave the way. Convincing employees to use the cognitive solutions is the next step. Build trust by focusing your initial forays on systems that augment and support your employees' expertise.

Enhance and expand strategically across HR

Cognitive systems are designed to learn and improve. Plan to assess the system's progress and continuously apply feedback to enhance and deepen cognitive functionality. As you refine and grow, assess your progress and measure the specific value of each solution. Being deliberate in your progression across different areas of HR, including talent acquisition, talent development and HR operations, can help you realize value in many elements of the employee experience.

For more information

To learn more about this IBM Institute for Business Value study, please contact us at iibv@us.ibm.com. Follow @IBMIBV on Twitter, and for a full catalog of our research or to subscribe to our monthly newsletter, visit: ibm.com/iibv.

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Are you ready for cognitive HR?

As you consider the introduction of cognitive computing into your organization, think about the following key questions:

- Which areas within your HR organization could benefit from cognitive computing?
- How could cognitive computing enhance your decision making in talent acquisition, talent engagement and HR operations?
- How effective is your organization in bringing together data from various sources to make effective decisions about your workforce?
- How could the application of cognitive technology in HR fit into your organization's overall business strategy?
- What new skills or competencies would be required in your organization to take advantage of cognitive computing?

Study team

IBM brought together a core team of cognitive computing experts, researchers, consultants and HR leaders to envision how cognitive capabilities will help transform human resources:

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Study approach and methodology

We examined three key streams of data for this report:

1. *IBM Institute for Business Value 2016 Cognitive Computing Study* – We surveyed over 6,000 global executives from various industries and markets, including 382 HR senior executives and 425 CEOs. Respondents were asked to answer questions related to the trends and challenges best served by cognitive computing, specific to their function. This paper focuses on the HR function; forthcoming studies will explore cognitive computing in other areas of the business.
2. *IBM Smarter Workforce Institute 2016 Work Trends Survey* – We surveyed over 8,600 English-speaking employees from companies around the globe at all levels in the organization. Respondents were randomly assigned traditional or cognitive approaches for typical HR scenarios and, for each scenario, asked to answer questions about their confidence levels, trust and decision paths.
3. *Lessons from early adoptions of cognitive HR solutions* – We talked to program leaders and solution designers to understand key challenges cognitive computing is addressing and the business outcomes of various cognitive programs.

Related publications

- “Designing employee experience: How a unifying approach can enhance engagement and productivity.” IBM Institute for Business Value. February 2016. http://www.ibm.com/business/value/employee_experience
- “Amplifying employee voice: How organizations can better connect to the pulse of the workforce.” IBM Institute for Business Value. October 2015. <http://www.ibm.com/business/value/employeevoice>
- “Unlock the people equation: Using workforce analytics to drive business results.” IBM Institute for Business Value. January 2015. <http://www.ibm.com/business/value/peopleequation>
- “Starting the workforce analytics journey: The first 100 days.” IBM Smarter Workforce Institute. May 2015. <http://www.ibm.biz/analytics-first100days>

Notes and sources

- 1 Lesser, Eric; Janet Mertens; Maria-Paz Barrientos; and Meredith Singer. “Designing employee experience: How a unifying approach can enhance engagement and productivity.” IBM Institute for Business Value. February 2016. http://www.ibm.com/business/value/employee_experience

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