CIO
Perspectives

Volume 6

Unlocking a Skills-Based Workforce

workday.

Fresh insights for closing the skills gap.

There's no question that the world is not the same as it was a year ago. The coronavirus (COVID-19) pandemic has impacted every aspect of life—how we live, work, and interact. But while the business world has been upended, new ways to solve long-pressing challenges have emerged, especially when it comes to closing the skills gap.

With many organizations slowing or freezing hiring, they're starting to look internally to find the talent with the future-ready skills they need to tackle change. CIOs are playing a major role in this effort—and innovative technology, such as machine learning and automation, is lending a big hand. This issue of *CIO Perspectives* explores how technology and IT leaders are helping organizations match the right people to the right roles and close the skills gap.

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The Foundation of the Workday Skills Cloud

The Foundation of the Workday Skills Cloud

Jim Stratton, Chief Technology Officer

Skills are quickly becoming the great equalizer. By looking at skills over pedigree or connections, organizations can make smarter hiring decisions in the first place and enrich the employee journey later with upskilling and more internal mobility. Companies can also better identify skills gaps across the organization in light of future business goals and source their talent more strategically to help drive the business forward.
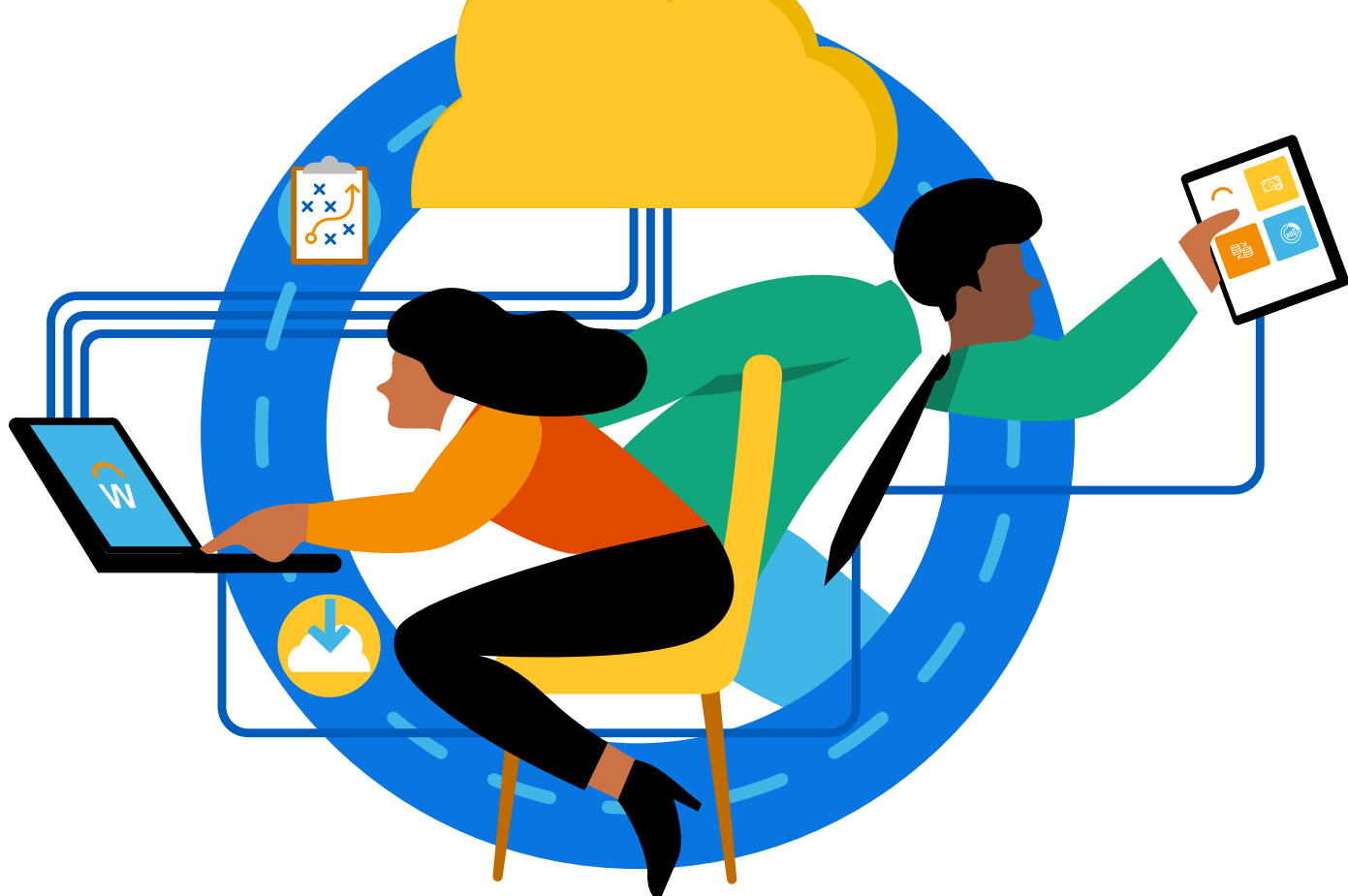
Let's take a closer look at how we engineered skills cloud to give the greatest possible value to our customers.

With the ability to rapidly fill roles and staff projects, and connect existing employees with the right development and stretch opportunities, companies can truly harness the strength of their most important asset.

But to effectively connect people with opportunities, organizations first need to understand the skills their people have and then see where in the business there are skills gaps. Employees are always learning and developing new skills through on-the-job experience, courses they might be taking on their own time, or even through hobbies.

The business landscape is always evolving, so the skills your company needs now aren't necessarily the ones it needs next year, to say nothing of 5 to 10 years from now. Perhaps most difficult to manage, skills are evolving faster than most recruiting and hiring technologies. New or newer versions of programming languages are always popping up. And something such as Kubernetes, for instance, might start off as the name of a technology but eventually become known as a skill.

At Workday, we've been looking hard and long at how to help our customers better understand the skills they have within their organizations. When we first embarked on our skills journey, we introduced our skills cloud, which we believe is a true technology differentiator as we start to realize our broader talent optimization vision.

Some skills platforms are disconnected from workers and rely on a static list of skills that's often woefully outdated. But at Workday we believe that skills are the fundamental currency of the changing world of work.

And, like currencies, their relative values are always changing while their foundational importance stays the same. In other words, our approach to skills reflects an ever-changing reality—the imperfect match between the skills workers have and the skills organizations need—in real time.

Machine Learning: The Key to Understanding Relationships Between Skills

The Workday skills cloud is a universal skills ontology (a way of understanding what makes up a skill and the relationship between different skills) that cleanses, understands, and relates job skills data. Built into the underlying framework of Workday Human Capital Management (HCM), the skills cloud foundation leverages machine learning and uses graph technology to not only maintain this growing list of skills, but also map how closely skills are related to each other.

And it's not simply that someone with skills in Microsoft Excel® likely also has skills in Google Sheets. But taking this example, someone highly skilled in Excel will likely have skills in data analysis, reporting, and other tasks that require Excel. You wouldn't know this in a typical database of skills. This is important because when it comes to recommending candidates for jobs, for example, you shouldn't have to rely on keyword mapping. The technology should understand how skills relate to one another and evolve over time.

We built skills cloud with data provided by our customers—as well as massive industry-standard sets of training data—so that we can better understand the needs of not just current customers but future ones. We use machine learning and graph technology to map the relationships between skills so that we can dynamically represent these ever-changing relationships.

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At Workday we believe that skills are the fundamental currency of the changing world of work.

Extending the Graph

Uniquely, Workday can add even more value for customers by creating a skills-based representation of any professional document, based on our technology's representation of skills. What does this mean? It means we can understand the relevant skills to any structured or unstructured document; for example, a resume, learning content, job description, and so on, and extract those pertinent skills and simultaneously represent such a document "spatially."

Understanding the spatial representation of skills provides a clear picture of how closely skills are related to one another, as well as to those entities represented with skills (jobs, for example). This enables us to determine a more optimal path toward a target result—in this case, matching workers or candidates to jobs, content, learning, mentors, and more—and vice versa, matching jobs to candidates, learning to workers, and more.

This spatial representation of both the underlying skills and documents allows the implicit discovery of skills across workers, candidates, learning content, teams, and organizations, without the addition of the explicit work of entering those skills. This also allows a representation of all documents in how they relate to each other in the "language of skills."

This unique observation is the basis of many machine-learning-driven solutions and products that we have brought to market, such as Workday Talent Marketplace, as well as new capabilities across recruiting, talent, learning, compensation, and workforce management.

By transforming that probabilistic graph of skills into a spatial representation of that same data, we can now substantially enrich that base data, and move to higher-value applications. This also enables us to leverage that same foundational base to build a diverse but consistent set of applications—which simply isn't

possible with siloed data sets and traditional development patterns. Understanding these relationships in a cloud-native, consistent source of truth enables us to build out a unique set of skills functionality.

With a robust set of worker data stemming from a customer community that includes more than 45 million workers globally, we can rapidly innovate across Workday applications to continue to bring more value to our customers. Think of skills cloud as the heart that pumps lifeblood into all the parts of the corporate body—no matter how it changes or grows, or what new muscles it develops.

The More It's Used, the Better It Gets

Because skills cloud is woven into the fabric of Workday HCM, it naturally extends to many Workday applications, such as Workday Learning and Workday Recruiting. This means that if a worker gains a new skill through Workday Learning or a short-term rotation inside the company, all recommendations in Workday related to learning, gigs, mentors, and opportunity graph will adapt and make different recommendations to either further develop this new skill or suggest what the worker's next skill should be.

The foundation we've created enables us to develop new features and functionality quickly. And as part of the same skills cloud "heart," they are all evolving simultaneously in real time, without a hiccup, to support customers who are using skills to drive talent optimization.

For example, with our second major release in 2020 (read about our new release schedule here), we have introduced more than 25 new features, including:

- Suggested skills for candidates
- Suggested skills for workers
- Suggested Workday Learning content
- Skills verification and endorsements
- Suggested gigs
- Jobs matching (in Workday Recruiting)

Importantly, our capabilities driven by skills cloud have grown at such a rapid pace that we've been able to deliver Workday Talent Marketplace, where people and opportunity meet in a smarter way. We look forward to helping our customers leverage the Workday Talent Marketplace and to expanding the use of our skills cloud as we continue to help them navigate a changing world of work. ●

How Citrix Is Closing the Skills Gap with Machine Learning

Josh Krist, Workday Staff Writer

This interview was conducted before the global pandemic. Still, we believe this content remains valuable for helping organizations move forward and emerge stronger.

Emerging technology continues to outpace the skills of today's workforce, making it harder than ever for organizations to find the right talent to fill jobs.

According to Deloitte, 70% of CEOs say that their employees don't have the skills needed to adapt to the changes driven by digital technologies. Especially in times of uncertainty,

it's even more critical for businesses to have the right skill sets to be able to quickly respond and pivot. So, what can companies do to address the workforce skills gap?

To find out, we spoke with Trenton Cycholl, vice president of Business Technology at Citrix, about how the organization is using machine learning to close the skills gap.

Workday: Before we get started, can you tell us a little bit about your background and your current role at Citrix?

Trenton Cycholl: Absolutely. I started my career working with structured data sources. I didn't know at the time that those data sources would later be the foundational pillars and centers of intelligence that companies would use to build future technology innovations, like AI.

I'm now the vice president of Business Technology at Citrix. I'm responsible for architecting and operating business solutions that help scale our business here at Citrix. My teams are focused on securing technology and delivering the tools, platforms, and solutions that make employees productive. This includes analytics and intelligence platforms that drive decision-making for the company.

Workday: Right, so you were a little bit ahead of your time when it came to working with data and understanding how it all flows and works together, which is great.

Cycholl: Absolutely. It's just interesting to see how technology builds upon itself as we learn, and to find ways to adapt and generate new opportunities for companies to leverage.

Workday: In the tech industry today, what are the unique challenges when it comes to the new talents and skills that people need to take advantage of those new opportunities that are emerging?

Cycholl: When we look at these challenges, it's important to recognize that people are the greatest asset a company has. At the same time, they represent the largest operating cost for most companies.

For many enterprises, people account for up to 70 percent of operating costs. Another factor to consider is that we're also seeing a talent crisis, not just in the tech industry but in every industry. As companies start to become more digital, technology skill sets are starting to blur into multiple industries. If you look at an example like Amazon, it started out as a bookstore and now it's a digital company.

All of these factors create a talent war. There's a new level of competition for people with the right skills, but to expand upon that, it's also becoming more and more difficult for companies to find good people.

Workday: Right. So over the next five years, what are the skills gaps that you're really looking to address?

Cycholl: When we look at the gaps in skills, and the skills that people need to build upon, we're seeing that people increasingly need more creative and innovative skill sets. And we're also seeing more and more of the redundant, mundane tasks—the busy-work type of items—going away. This means we're hiring people that are quite honestly at a different level of intelligence, because now we're going to exercise muscles that we hadn't before in terms of intelligence and creativity.

Workday: How is Citrix staying ahead and addressing some of these challenges? What are you doing as a company?

Cycholl: One of the ways we're addressing these challenges is by taking a look at the intersection of IT and HR. For years, technology has been at the center of getting work done—and being part of the work getting done.

HR focuses on making sure that employees have a great experience, that information is secure, and that business leaders have the insights they need, quickly. So we are looking at all those things because they are important to the people working at companies, and for companies in retaining talent.

> # We're living in a world where there are so many connected applications and systems that people need AI to help navigate in a productive way across all these tools and solutions.

At Citrix over the last three to five years, that relationship between IT and HR has changed drastically. Today, as HR makes people decisions, technology is just part of the discussion. Our HR platform is no longer looked at as just a side technology that gets implemented. We focus on questions like "How are we going to enable people to be productive using technologies? How are we going to enable people to lead and drive change within the organization?" Having that HR and IT partnership where we design solutions together has made a huge difference in Citrix as we strive for better employee engagement.

Workday: Citrix is a leader when it comes to leveraging AI and machine learning. So, how is the company currently using those technologies?

Cycholl: We see AI as a way to make processes more efficient. So we look for where we can apply technology and leverage AI to improve simplicity and to improve productivity. We're at a point where technology has to be created to actually solve the problems that technology itself is introducing. We're living in a world where there are so many connected applications and systems that people need AI to help navigate in a productive way across all these tools and solutions.

So we see productivity as the big win for artificial intelligence. We're going to be able to actually have systems that learn how they're connecting. So, for instance, as everyone does their annual performance reviews, they will receive recommendations for certain skill sets to work on.

And part of this is making sure that technology does not get in the way of people. Technology has to be somewhat invisible in how people get work done. And people don't want to search for things anymore; they want technology to work a lot like it does in their personal lives.

They expect that when they come into a company, their technology experience is going to be the same as when they get an Uber or Lyft, or when they order a coffee from a Starbucks. They expect simple point-and-click experiences. So we need to remove anything that gets in the way of people getting work done.

Workday: So, you mentioned HR and IT needing to work better together. How are you doing that at Citrix?

Cycholl: The relationship between IT and HR is an important one in employee experience and driving technology across the organization.

As an HR manager, why wouldn't I just immediately have people registered for the particular training they need in my training system? Why would I wait for that conversation to come up again, where the manager or the employee says, "Oh, I forgot to take it because we had the conversation a year ago." And so those are the kinds of productivity gaps we can close with AI, and that's the kind of busy work we can move out of our company. We think that's really important.

Workday: What type of insights do you get from machine learning that help you make better business decisions?

Cycholl: So, around business decision-making, we're in the middle of a transformation that involves moving our 30-year-old business to a cloud-subscription model. For us, it's valuable to know if a customer is going to renew their subscription or not. Anticipating any churn and identifying where we might need to apply either more customer service or attention to a customer—that's a big part of some of the insights we're starting to get from our intelligence system. So we're driving a lot of machine-learning modeling and automated learning around our subscription model and renewals.

The other area that's pretty important is anticipating security risks. AI and machine learning, specifically, are really getting good at understanding where there might be potential risk for security incidents. Knowing those risks obviously before they happen would give anyone an extreme competitive advantage and really help in better managing the challenges of security in today's day and age.

Workday: How do you think AI and machine learning will impact your organization when it comes to finding talent?

Cycholl: I think there are a few things around talent, which is important when it comes to applying machine learning within the organization. And one is, how do we automate that training process and understand what those— for lack of a better term, robots—are going to need in order to understand how to do what they're designed for? Also, in general, there's just a lot of busy work in the whole talent-acquisition process, and busy work is a great opportunity for AI and machine learning. This includes everything from finding skills and matches, to scheduling, to performing the actual candidate reviews and managing those reviews.

There's just a lot of busy work in that whole process. The hardest part of that whole recruiting process is getting the right candidates in front of that decision-maker. And this is a great opportunity where recruiters can automate all that busy work, find great candidates, and uplevel the skill sets that we're looking for.

And more importantly, this is also a great opportunity to use AI and machine learning to find some of the skills that exist in organizations, especially the larger ones, because there are usually great matches within companies. This then creates great learning opportunities for existing employees and longer-term benefits for a company by retaining talent for a longer period of time.
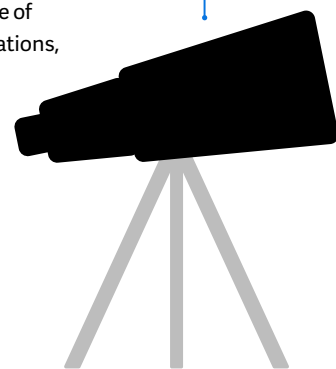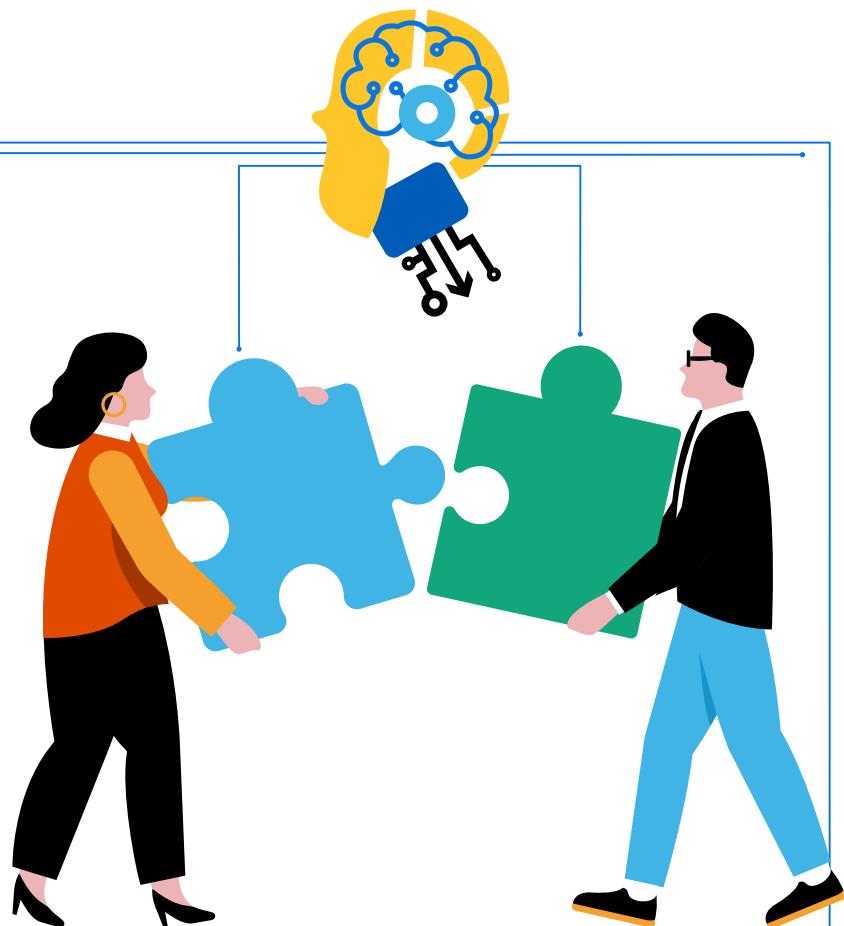
Workday: The thing about the busy work is—just regarding time and money—there's all that waste but also nobody comes home after a day of busy work saying, "You know, it's great. I just spent all day doing something that really, we should automate." Right? So, if this stuff is automated, then people can actually spend their time having a great conversation with maybe fewer candidates, but each one is more interesting and they can go deeper.

Cycholl: Yes, absolutely. And, you know, there's also the cost of, quite honestly, hiring the wrong person. And with so much busy work, you're going to make more mistakes as a human being. So it's a great opportunity to not have to worry about all the time needed to match up all the skills and instead focus on other things like softer skills or understanding how adaptable someone might be from the interview—instead of, "Do they have experience XYZ?" That's a checkbox, and that's a great opportunity to let machine learning do its thing, and let the robots partner with the humans to find the right candidate.

Workday: And how do you think machine learning will change how business is conducted over the next decade?

Cycholl: Like we just talked about a minute ago, there's definitely a skills change from people who are programming the robots and telling them what to do, as opposed to actually executing the busy work. So, that busy work kind of goes away, and people will start to change their skill sets. You're going to be able to sift through a lot of large sets of data quicker and not have to worry about spending as much time on them. So, that's going to accelerate business growth, as well as how people aggregate and pull together new businesses.

And then, there's a huge cultural change as part of this, very similar to this whole transition that we've seen in moving from the data center to the cloud. There's been this whole sort of readiness activity that everyone went through, asking themselves, "Oh my gosh, I'm going to put my data in the cloud? What does this mean? How do I do this?" The transition we're now seeing is, "Oh my gosh, there's going to be a robot doing part of my job? What is this new job I now need to focus on? How do I do the things I need to do? And how do I go through this skills change so that I can be more creative in what I do?"

All of this is going to cause a lot of people angst and present a lot of challenges. But in the next 10 years, that cultural shift is going to be something we look back on and ask, "How did we do it any other way?"

Workday: What advice would you give to other companies looking to capitalize on AI and machine learning? We're already going faster, and the acceleration that we're seeing is going to continue.

Cycholl: The first thing is to get really laser-focused on those busy-work use cases. Most people know where they are—it's just a matter of calling them out and making sure you're focused on the use cases that are going to matter most. Because AI and machine learning are no longer just ideas. This is real stuff that can actually add a lot of value. So I think it's important to find those use cases, and, more importantly, get to that human element of the change that people are going to go through. Get your organizations and people ready for the skills that they are going to need.

Understand that change and what people are going to do with their careers—and how they're going to manage all of this in a hybrid world that includes machine-learning robots and human beings at the same time. This is a big deal for people to go through, and people change—or changing how people work—is one of the hardest things companies do. So, it's better to get started on that sooner rather than later. ●
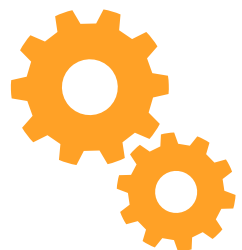
Get your organizations and people ready for the skills they are going to need.

How Coca-Cola Is Trailblazing the Skills Movement

Josh Krist, Workday Staff Writer

This interview was conducted in October 2019. While the world looks a lot different today, we believe this content remains valuable for helping organizations move forward.

Consumer packaged goods companies are under enormous pressure to innovate at a fast pace. No one knows this better than Max Just, global director of Business Intelligence at Coca-Cola, who's tasked with maintaining a truly iconic brand while staying ahead of the competition.

Max sat down with us to discuss how the company is using machine learning to connect the future of work to new opportunities for its internal talent pool.

The pressure to innovate at a fast pace is very high, and that forces all of us to rethink the way we do work, the way we go to market, and the way we organize ourselves.

Workday: Can you tell us about some of the unique challenges that are facing the consumer packaged goods industry?

Max Just: The behaviors of the consumers are changing. Technology is transforming the marketplace at a pace that we've never seen before, and that impacts most of the CPG companies out there. The pressure to innovate at a fast pace is very high, and that forces all of us to rethink the way we do work, the way we go to market, and the way we organize ourselves. And that also forces us to shift our mindsets and approach the work in a more agile way.

Workday: What are you doing about getting ahead or addressing some of these challenges, especially around skills?

Just: I'm responsible for HR technology, among other things, and that is a great place to be at the moment because it is changing so rapidly. It's a live representation of what we are seeing right now in the marketplace, and some of those technologies are playing a key role in enabling the way we'll work in the future. At the moment, for example, I'm experimenting with how to use machine learning for skills and the internal talent marketplace.

Essentially, one of the problems that I'm trying to solve is how to surface the skills that we have available within the organization and connect them to opportunities for people to have new experiences at work.

Workday: How are you doing that?

Just: We started working with a Workday feature called skills miner, which essentially allows us to look at the talent that we have within the organization and understand their skills—not only by their self-reported skills, but also the skills that are hidden in past experience that maybe aren't normally labeled on a resume. Workday machine learning solutions are helping us identify all of that. This is great because when we tested skills miner in our test environment for the first time, we identified a significant amount of new skills.

Workday: Are there certain populations that you're looking at?

Just: We're not limiting it at the moment because we're still learning how it works, how to adjust the different data elements, and the best way to utilize them. For example, think of a manager who wants to do a certain project, but for whatever reason, they are missing the key skill set that enables that particular project. In the traditional world, they would go and recruit for that skill in the outside market or they would bring on a contractor or a consultant. As you can imagine, that is a longer process, and prevents an associate within the company who may already have that skill from developing it even further.

Workday: Can you talk about the impact this will have on your teams?

Just: We're just starting to experiment with all of this, so it's hard to predict what all the impacts will be, but there are two clear stakeholder groups that are going to be positively impacted. If you look at it from an associate perspective, one of the key benefits is that whatever it is that they know how to do, it will be surfaced to those who are looking for those skills in real time. If we couple that with the information that we have about associates in terms of what they want to do next in their career, we can identify and suggest next steps in their careers, such as new learning opportunities to short-term assignments or projects. So all those things put together could help an associate take more control over their career than what they can do today.

For leaders, many of them have the intent to develop their talent, but they may not have all the information that they need in order to help steer the careers of people that work for them. In the future, that connection will be much more feasible and dynamic due to the development of tools around skills and machine learning in the marketplace.

> Workday machine learning solutions are helping us identify skills that are hidden in past experience that maybe aren't normally labeled on a resume.

> **By delivering and deploying the right tools to assess and serve the insights of that data in real time into the hands of decision-makers, it's critical to win in the marketplace.**

So, for CPG companies, we'll have the opportunity to provide better products at the right time and even predict the needs of the consumers, particularly as connectivity continues to grow in its availability around the world. So that brings a lot of opportunities, definitely, but it also brings a lot of challenges because companies are not necessarily wired to use all that data and make decisions as fast as that data suggests.

I think that is going to force the industries to have the necessary infrastructure to make decisions based on it and change very quickly.

If you think about industries where the supply chain is so rigid, that's where I think machine learning plays a key role. By delivering and deploying the right tools to assess and serve the insights of that data in real time into the hands of decision-makers, it's critical to win in the marketplace.

Workday: What advice would you give to other companies looking to capitalize on machine learning?

Just: I would advise them to be brave. There is a lot to discover and those that lead from the front will reap the benefits of it very quickly. Most importantly, be agile. Now more than ever, shifting from a traditional mindset into a mindset of failing fast, learning from it, and trying again will produce more benefits than putting the best solution out there over a longer period of time, because as time passes, that solution will probably no longer be relevant.

Workday: You selected Workday Human Capital Management in 2015. What ultimately led to your selection and what were you hoping to achieve?

Workday: Do you have any thoughts about how machine learning will disrupt or change the consumer packaged goods industry in the next 10 years?

Just: From my point of view, one of the key disruptions of the future is the abundance of real-time data that the digital economy will continue to bring.

That will change the way we do business with our consumers because we will know significantly more about them. More data will be available about them and about what they may need, allowing us to use that data to try to win in the marketplace.

Just: We were coming from a very dated on-premise solution that was highly customized to multiple locations around the world, and it's hard to get full visibility of what's going on from an HR perspective when you are set up that way. The processes were very cumbersome, and the data wasn't easy to surface and learn from. We were looking for something significantly more modern that could bring innovation at a faster pace. We selected Workday among the competitors at the time.

Workday: Can you talk a little bit about your HR transformation since then?

Just: Our HR transformation started in 2010, when we set up our first shared services organization in Latin America. That's the time that I started at Coke, initially as a consultant and then as an employee. What we first did was set up shared services centers of excellence that would work with corporate HR and their strategic business partners from around the world to drive the best services to the marketplace.

Then we created shared services centers in three locations around the world, still working with our own old technology, but we put internal call centers and CRM to manage the needs of our internal clients.

The last thing that we did was replace our HR system, which we started looking into in 2015, and went live in 2017 with Workday. So that, in a nutshell, is what we've done. And since then, we've constantly had to iterate the way we do work, based on the things that we were just describing. The needs of the business constantly change, and we need to adapt and be more agile as well.

Workday: Do you think machine learning is the next big game-changer when it comes to your HR transformation?

Just: It's a key part of it, definitely. As part of the new generation of employees, they have an interest in doing new things on a constant basis. It's quite hard because the regular mechanism for that is to first identify the job that you want to do, which is typically identified by talking to people or looking at postings, applying to them, and hopefully a few months later, you'll get the job and start transitioning from your old one.

The younger generations don't have that level of patience. Their curiosity and their willingness to do new things more frequently is something that we haven't seen before, and therefore, we're not wired to do it.

I think machine learning plays a key role in identifying what those people want to do and, at the same time, helps their leaders and managers in the organization connect with them and build an avenue so that opportunity turns into real-life experience in a much more dynamic way than the process that I described before. So hopefully that will help us retain the talent that is curious and willing to do new things, and then most importantly, reap the benefits of the experiences that they gain.

> **"**
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Max Just, Global Director of Business Intelligence, Coca-Cola

About Workday

Workday is a leading provider of enterprise cloud applications for finance and human resources.

Founded in 2005, Workday delivers financial management, human capital management, planning, and analytics applications designed for the world's largest companies, educational institutions, and government agencies. Organizations ranging from medium-sized businesses to *Fortune* 50 enterprises have selected Workday.

To learn more about our technology, visit: **workday.com/cloudtechnology**