

TALENT AND THE FUTURE OF WORK

The Essential Guide

Presented by
plum



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Introduction

“62% of executives believe they will need to retrain or replace more than a quarter of their workforce between now and 2023 due to automation and digitization.”¹

Machines will be capable of carrying out half of all work tasks by 2025 — equating to the loss or displacement of 75 million jobs. But, in the same period, 133 million human jobs will be created.²

The workforce is being disrupted. All organizations are preparing to face unprecedented workforce planning, upskilling, and talent management challenges. Based on their size and complexity, enterprise organizations will feel the pain of this transition most acutely.

As a talent acquisition and management expert, you no doubt know that understanding the future of work — and how to align talent to future business needs — is central to enterprise success.

Reading thought leadership and listening to podcasts from industry experts on the future of work can be overwhelming (and even demoralizing). All the focus seems to be on the upcoming disruption and how it will affect the workforce, with no reference to actionable next steps on how to prepare now or how to start a dialogue in your organization. The purpose of this e-book is to provide some hope in the too-often apocalyptic nature of discussion when it comes to the future of work. As a talent expert, there are reasonable and intentional steps you can take right now to ensure your organization's talent processes are future-ready.

In this primer, we'll overview the collective predictions made by analysts and experts on the future of work — or what many are calling the fourth industrial revolution. We'll tie these findings to how talent acquisition and management practices will need to adapt today to keep pace with new trends in how talent is being hired, upskilled, and retained that will emerge in the next 10 years, 5 years, and even 6 months. Hint: the key will be mobilizing talent in more fluid, and less linear, pathways. More on that to come.

In short, what (sorta) works today isn't going to work in the future. Automation and AI will disrupt a lot — but they'll also be your secret weapon to humanizing talent acquisition and management.





Chapter One

The Future of Work and Why It Matters To You

85% of jobs that will exist in 2030 have not been invented yet.³

Of course, this isn't the first time we've seen a brave new era for the economy and our jobs (see Figure 1). The first and second industrial revolutions changed society as a whole forever. Among other effects, these transitions spurred urbanization, created new work opportunities, and saw a massive shift towards women taking jobs outside of the home.

In another major shift, the popularization of computers in the 1980s followed by widespread embrace of the Internet led to the creation of new roles, new ways of working, and fresh approaches to job searches (CareerBuilder, Monster, LinkedIn or the "Twitter resume"). Suddenly, job seekers had access to new roles and opportunities they otherwise may not have discovered.

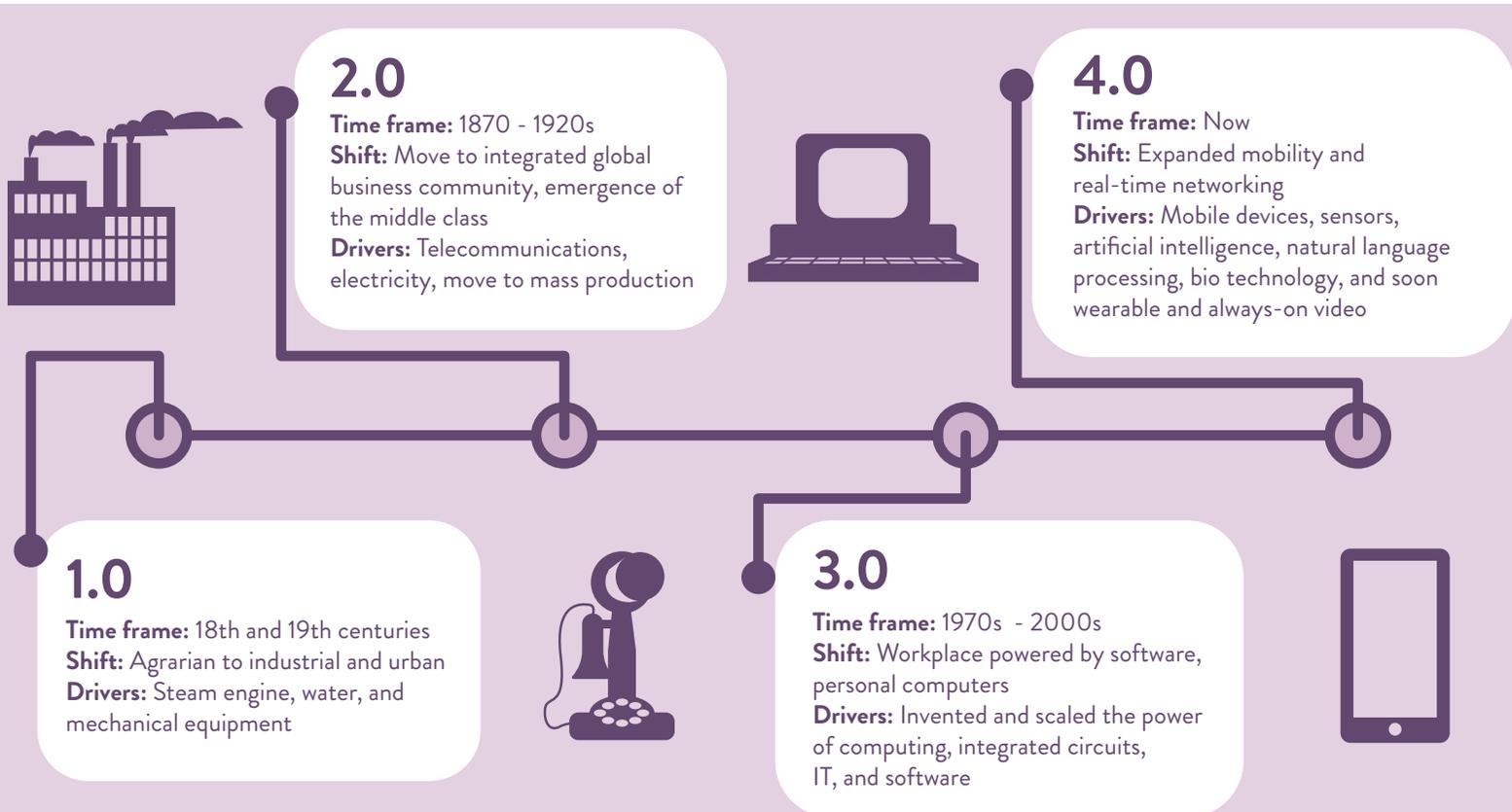
Still, even with all this access available to both employers and job seekers, employers still faced the age-old recruiting pain point — getting the right people in the right seats. Although the quantity of

In 1900, two-thirds of the population worked in agriculture or manufacturing, with 38% on farms, and 25% in factories. Today, only 1 in 10 do so.⁴

accessible job openings increased (at the time of this e-book's publication, 60,000+ jobs had been posted to Indeed in just 7 days), quality — matching people to the right jobs — stagnated.

Today, we find ourselves in the midst of the fourth industrial revolution — a shift which will impact the working world globally.

Figure 1 - The Industrial Revolution: An Overview



The experts agree — We are entering what many are calling the “fourth industrial revolution.”

How this Transformation is Different

The speed at which transformation occurs distinguishes the current re-envisioning of the ways we work. The progression of automation, artificial intelligence, and robotics are among the technological advances rapidly accelerating the need to rethink roles, responsibilities, and recruiting.

James Manyika, chairman and director of the McKinsey Global Institute, has identified several major considerations when discussing the future of work.⁵ These include:

- ◇ The impact of artificial intelligence.
- ◇ The automation of jobs and its effect on the availability of human roles .
- ◇ Changing models for work and work structure (consider the surge in independent work, outsourced services, remote workers, and the gig economy).
- ◇ Availability of data (2.5 exabytes of data are produced every day⁶ over text, video, pictures, voice data streams and more).

Global recruitment company Next Generation’s research adds further insight into the changing world of work.⁷ They anticipate reverberations from:

- ◇ A shift away from traditional hierarchical structures to a more flexible, flat system.
- ◇ Growing inclusiveness of diverse job candidates.
- ◇ Increased focus on empowering and engaging employees instead of simply expecting decades of company loyalty.

The reality is, the fourth industrial revolution will impact the workforce in an unprecedented disruption. At the same rate that jobs will die, new jobs will be created. Some future of work predictions include:

- ◇ By the year 2034, 47% of today’s jobs will be automated. Some 65% of today’s students will be applying for jobs that don’t yet exist.⁸
- ◇ 6 of 10 current occupations have more than 30% of activities that are technically automatable.¹
- ◇ Automation could raise productivity growth globally by 0.8 to 1.4 percent annually.⁹
- ◇ While there may be enough work to maintain full employment to 2030, the transitions will be very challenging.¹
- ◇ Between 400 million and 800 million individuals could be displaced by automation and need to find new jobs by 2030 around the world.¹
- ◇ Of those displaced by automation, up to 375 million may need to switch occupational categories and learn new skills.¹

Here are a few job titles that industry experts are predicting will emerge:

- ◇ Augmented Reality Journey Builder¹⁰
- ◇ AI Lawyer¹¹
- ◇ Drone Pilot¹²
- ◇ Digital Archaeologist¹³

At the same time, the sheer volume of employers and employees is staggering. Today, 130 million people make up the U.S. workforce. According to the OECD, 5.06 billion (or 66.6%) of the world's population is working age.¹⁴ A staggering number of people will be affected by this disruption.

If new roles we haven't seen before are being created at the same rate (or even faster) than other jobs are being phased out, organizations will have two choices. One option, let go of people in masses, and hire new people at an equal or greater rate — an absolute recruiting and resource management nightmare. Alternatively, organizations can keep talent internal, migrating people from dying jobs to new jobs. The way we currently manage talent, however, is not setup for such a transition.

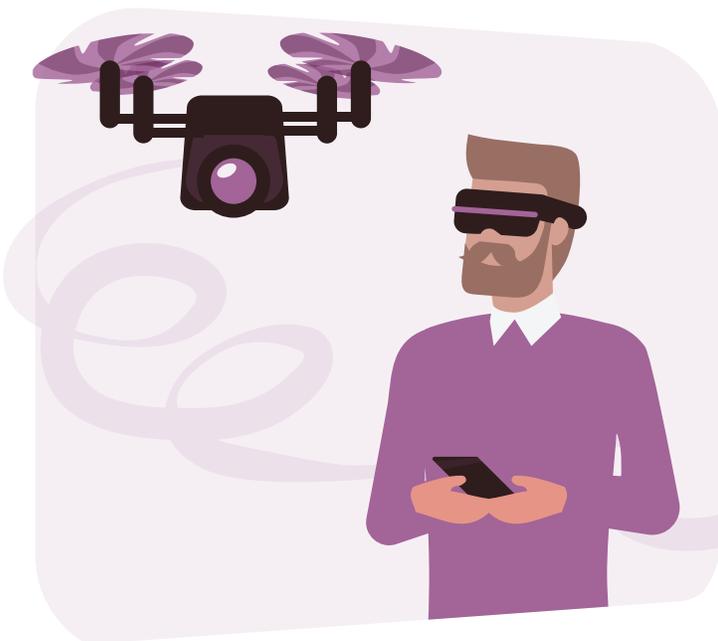
“Some 40% of workers participate in job-related training, on average across OECD countries, but that participation often amounts to just a few hours per year.”¹⁵

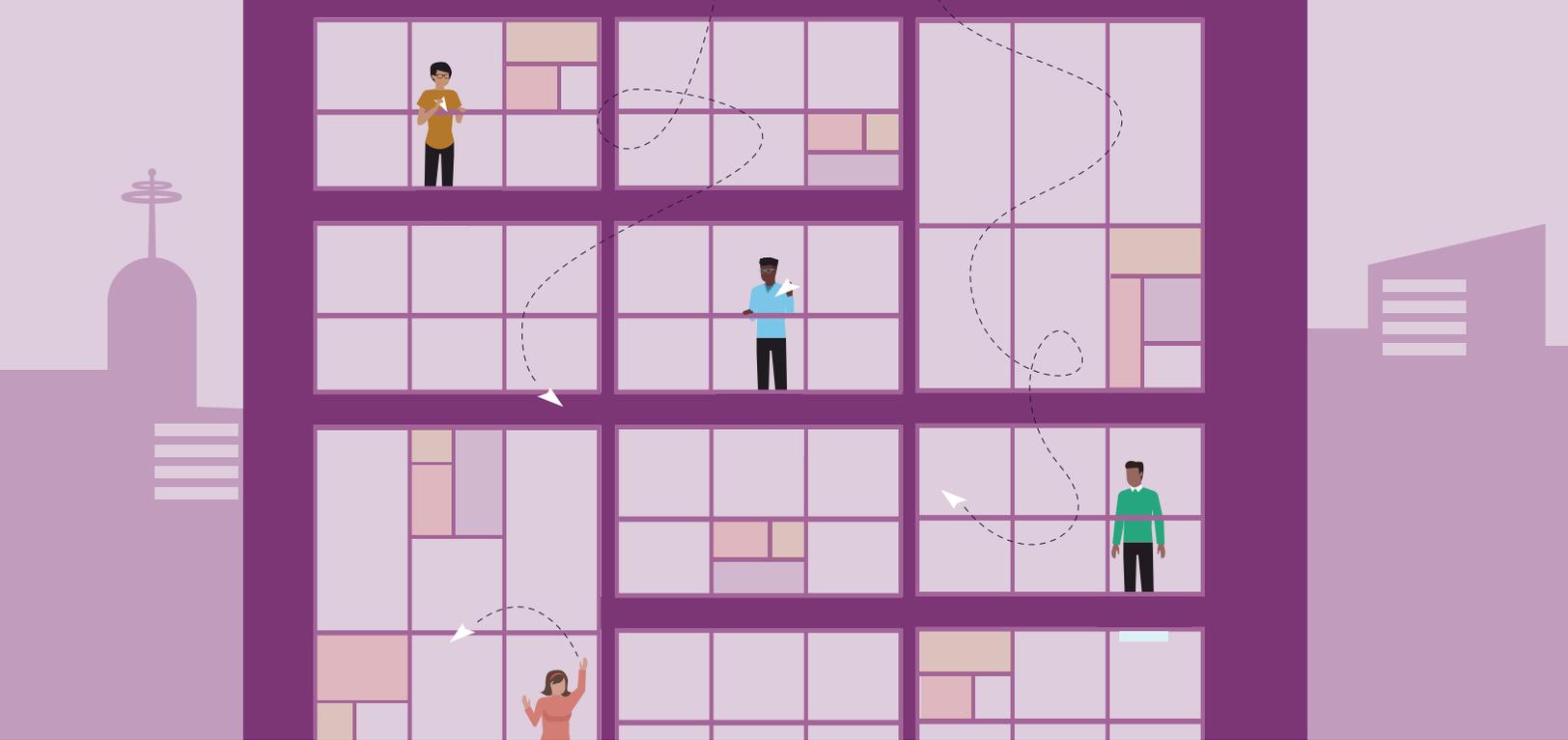
Talent Flow: The Key to Finding a Future in this New World of Work

Organizations that are willing to adapt face an audacious opportunity to get ahead of the competition. While job creation will be dependent on robust economic growth, the enterprise that succeeds will also have the vision to:

- ◇ Provide job retraining and enable individuals to learn new skills.
- ◇ Embrace labor mobility and flexible labor markets.
- ◇ Plan ahead to provide transition assistance and invest in labor-force training.

In other words, the winners and losers in this next industrial revolution will be determined by HR and how it can mobilize talent. CHROs are responsible for solving one of the greatest threats to an organization's existence. Too many department managers and executives have their heads down focusing on their own business unit; it will be up to talent professionals to see the bigger picture, predict which jobs will organically phase out, and make plans to move talent along unconventional career paths.





As such, the future of work demands an approach to talent management that breaks down the rigid silos within business units and liberates people to flow across roles and departments. We (among many other talent thought leaders) call this process “talent flow.”

Talent flow is a more organic approach to talent management. Think of career lattices as opposed to career ladders.¹⁶ Rather than expecting decades of company loyalty from employees climbing the ladder in one department, companies must allow individuals to seamlessly move across the organization into roles that match their innate talents.

How will this keep organizations agile? First, employees are satisfied because they avoid restlessness and get diverse work experiences — often in places they may not have expected — without having to leave the organization. Organizations also reap the benefits of these diverse work experiences, especially as these employees enter managerial positions and are able to understand the effects of decisions on multiple business units, and not just a singular department. Employees who understand all functions of a business can make smarter business decisions.

Unfortunately, the way most organizations treat talent mobility today is pretty static and rigid. And that’s greatly due to the way talent acquisition and talent management processes are structured.

At its core, this is a data problem. This kind of mass migration across business units is impossible today because organizations don’t have the right data to know if the way they mobilize talent will get the right people in the right seats.

With business silos come data silos. Each department hoards the people data they themselves have collected. The data is disparate; data collected in one business unit is incompatible with the data collected in another. There is no way to show relationships between datasets, and therefore there is no way for the data in one department to talk to the data in another. This is a big barrier for talent flow.

A universal and holistic approach to collecting and storing data is critical to breaking down these organizational walls keeping talent from fluid career paths.

So what Exactly is a Universal Talent Dataset?

A universal talent dataset consists of predictive people data that can be leveraged in every business unit. It breaks down the siloing of data in an organization.

This kind of dataset goes beyond standard KPI's HR departments love to collect, like absenteeism or time to hire. Although this is simple data to measure, these metrics don't deliver business critical insights that have significant impact on the overall organization's performance. Bernard Marr, contributor at Forbes, said it best:

HR teams can use data to make better HR decisions, better understand and evaluate the business impact of people, improve the leadership's decision making in people-related matters, make HR processes and operations more efficient and effective, and improve the overall wellbeing and effectiveness of the company's employees. All of this can have a huge impact on a company's ability to achieve its strategic aims, and that's what makes HR data so valuable.¹⁸

In order to understand what kind of data makes up a universal talent dataset, we first need to understand what constitutes generally high quality, predictive data, and how this relates to the data we collect about people (see Figure 2). The definition of quality data can usually be syphoned down to seven characteristics; the data quality management solution, Blazent, has labelled these characteristics as accuracy & precision, legitimacy & validity, reliability & consistency, timeliness & relevance, completeness & comprehensiveness; availability & accessibility; granularity & uniqueness.¹⁹

The new rules of talent acquisition and talent management will demand a universal talent dataset that can support talent flow at scale in organizations. But first — what are the new rules of talent acquisition and talent management?

“We believe this wave of innovation will result in a ‘human revolution’ that will allow businesses to focus time, talent and energy on the thing that really matters: the people that lead to business outcomes.”

-Greg Tomb, president of SAP SuccessFactors¹⁷

Figure 2 - What is Good Universal Talent Data?

Quality Data Characteristic	Definition	How It Applies to Universal Talent Data
Accuracy & Precision	The exactness of the data; it cannot have any erroneous elements and must convey the correct message without being misleading.	Is the people data you're collecting objective or anecdotal (i.e. "gut feel")? Objective datasets are not subject to interpretation and therefore are less susceptible to bias.
Legitimacy & Validity	Requirements governing data set the boundaries of this characteristic. For example, if a survey asked for a yes/no response, but the respondent gave something other than a yes/no response, that data would not be considered legitimate & valid.	Is there research to prove that the way you're collecting data is measuring what it says it's measuring? For instance, if you are using a behavioral assessment to collect personality data, has the vendor provided a technical manual that outlines the research on the assessment's validity?
Reliability & Consistency	There must be a stable and steady mechanism that collects and stores the data without contradiction or unwarranted variance.	Continuing on the assessment example, are you using the same assessment to gather the personality data of your employees and applicants?
Timeliness & Relevance	There must be a valid reason to collect the data to justify the effort required, which also means it has to be collected at the right moment in time.	Are you collecting certain people analytics because other organizations are collecting that data, or do you have a clear idea of how the data you're collecting will assist in predictively migrating talent across the organization?
Completeness & Comprehensiveness	Gaps in data collection lead to a partial view of the overall picture to be displayed. Without a complete picture of how operations are running, uninformed actions will occur.	Are you collecting the same talent data for every person across every business unit in order to ensure cross-organizational "compatibility?"
Availability & Accessibility	Individuals need the right level of access to the data in order to perform their jobs.	Is there a uniform database that stores talent data so that the appropriate personnel in every department can view it? Can it be accessed from anywhere globally?
Granularity & Uniqueness	An appropriate level of granularity must be defined to provide sufficient uniqueness and distinctive properties to become visible.	Are you collecting data that provides a holistic view of each individual's strengths and areas for development?

Chapter Two

Rethinking Talent Acquisition in the New World of Work

38% of CEOs globally say they're extremely concerned about the availability of key skills as a threat to business growth, according to PwC's CEO survey.²⁰

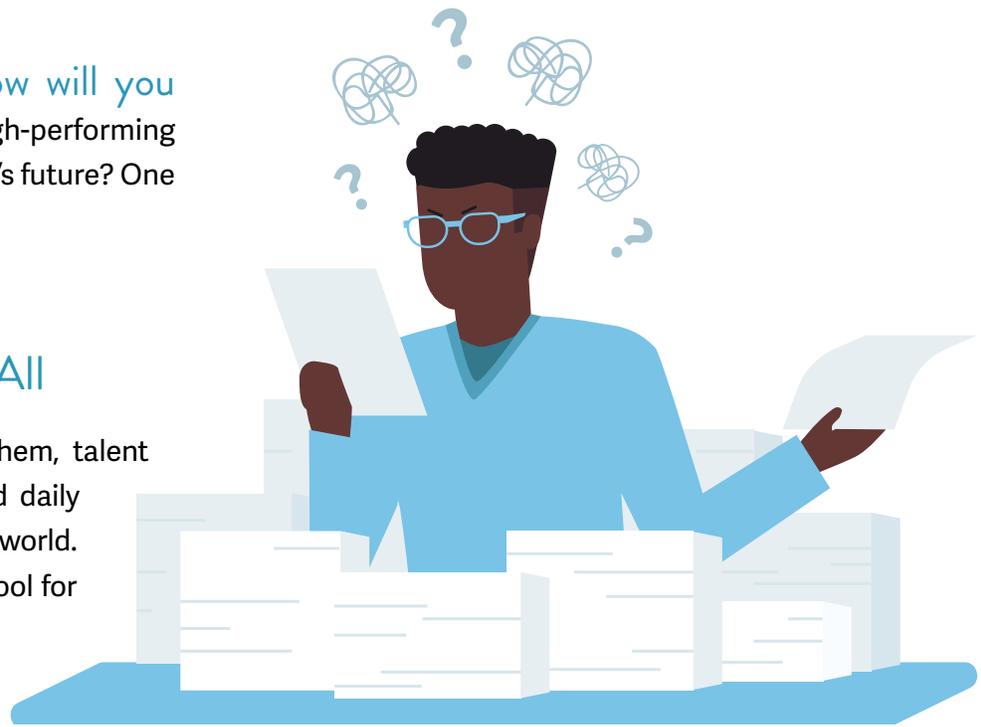


In this period of transition, how will you find the individuals you need to build high-performing teams ready to tackle your organization's future? One thing's for sure — resumes won't cut it.

Resumes as the Be All End All

Resumes, CV's — whatever you call them, talent acquisition professionals are inundated daily with the ultimate status quo of the hiring world. However, they're not actually the best tool for recruiting and identifying top talent.

Surprisingly, the first professional resume is thought to have been written in 1482.²¹ Less surprisingly, it's attributed to Leonardo da Vinci (who was also sketching tanks, helicopters, and parachutes among his thousands of inventions). Nevertheless, it wasn't until the 1930s that resumes became commonly used, and by 1950 they were an expectation.



Then, in the mid-1990s, career-focused sites such as Monster and CareerBuilder launched as hubs for both job postings and resumes. Fast forward a decade more and we've moved away from the excitement of email resumes to LinkedIn profiles, YouTube video resumes, and digital CVs on social media.

Yet throughout these evolutions, the dependence on resumes to narrow the field and shortlist interview candidates has remained unchanged. With many jobs to fill, stacks of resumes to consider, and limited time and resources to do the legwork to find the right person for the job — a simple scan of skills and background may seem like the best you can do.

A bad hire could cost you up to 5X the employee's annual salary.²²

Are Resumes Really Working?

Reviewing resumes as an initial screening practice isn't actually all that reliable. While many in hiring rely on "gut instinct" and speak about "cultural fit,"²³ research shows that:

- ◇ Judgment processes vary (even within the same organization) in how people interpret resumes, which leads to inconsistency.
- ◇ Idiosyncratic patterns exist in talent professionals' review of job applicants.
- ◇ Recruiters have difficulty remaining impartial, which perpetuates stereotypes and prejudices.
- ◇ People distort or ignore information that doesn't support their preconceptions, which supports confirmation bias.²⁴

Not to mention, resumes focus solely on one's skills and knowledge. "Skills" refer to the "how-to's" of a role; whether you know how to use MS Excel, Javascript, Photoshop, and so on. "Knowledge" refers to literally knowing something, which can usually be quantified in a degree or designation, like a CPA, MBA, or PhD. These are the kinds of things you'd find on a resume.

In 1998, Schmidt & Hunter found that years of job experience and type of education — the skills and knowledge portion of the resumes — had an extremely weak correlation with job performance.²⁵

In behavioral science, correlations are measured using coefficients (r). These coefficients range from -1.0 to +1.0, and when it comes to selection tests, a coefficient of 0.35 and above is considered very beneficial. Experience and education only have a correlation of 0.18 and 0.10 with job performance respectively. These kinds of correlation of coefficients are defined as "unlikely to be useful."²⁶

Long story short, the science shows that resumes are poor predictors of a candidate's on-the-job success — and we've known this for almost 20 years. And that's not even considering the future of work; resumes' focus on pre-existing skills and knowledge does little to anticipate someone's ability to do a job that doesn't even exist yet.

Needless to say, if resumes aren't working now, they certainly won't work to identify top talent in an uncertain future of work.

We talked last chapter about the massive workforce migration on the horizon due to technological advances such as automation, AI, and machine learning. So, how exactly do you prepare for this challenging new future?

85% of jobs that will exist in 2030 have not been invented yet.³

What's Gut Got to Do With It? A Case For Predictive Hiring

By 2030, it's expected change will be so rapid that workers will need to be able to learn "in-the-moment" using new technologies such as augmented reality and virtual reality.³ This ability to gain new knowledge can't be demonstrated with a resume. So, if we want to truly step up and change for the future or work, we need to embrace a predictable, repeatable, and quantifiable approach.

The Perfect Match



It's difficult to gauge a candidate's potential within your organization if you focus exclusively on skills and knowledge. Take hiring a salesperson, for example. If all you consider is the size of their sales region, or the volume of deals they've signed, you are missing key information about the candidate's potential. These stats won't tell you whether or not that individual will be adaptable, or if they possess the social skills needed to succeed as your business grows and innovates.

Gauging a candidate's potential based on skills and knowledge is only going to get harder in the future of work. With jobs emerging such as Augmented Reality Journey Builder, AI-Assisted Healthcare Technician, and Chief Trust Officer,¹⁰ how do you find candidates with relevant education and previous work experience?

Critical thinking and creativity, communication and collaboration – these will be the standout skills in the age of advanced technology.

-Dave McKay,
Royal Bank of Canada²⁷

Your new hires will need to demonstrate different abilities than the employees you brought on board just a decade ago. They will need to be able to do what AI can't yet do, and probably won't be able to do in the foreseeable future. The standout skills in the future of work, according to various experts, include:

- ◇ McKinsey: Emotional skills, such as leadership and managing others. Higher cognitive skills, especially creativity²⁸
- ◇ Harvard Business Review: Imagination, creativity, strategy²⁹
- ◇ Deloitte: Creativity, teamwork, problem-solving, writing, research³⁰
- ◇ Forbes: Empathy, communication, critical thinking, creativity³¹
- ◇ World Economic Forum: Innovation, active learning, creativity, critical thinking, complex problem solving, leadership³²

You may know these as soft skills; at Plum, we call these talents.³³ We borrow this terminology coined by Marcus Buckingham and Curt Coffman in their book, *First, Break All the Rules*. Whereas "skills" refer to the "how-to's of a role", and "knowledge" refers to "what you are aware of," talents refer to "recurring patterns of thought, feeling, and behavior."

In other words, talents can quantify human potential.

The move from career ladders to career lattices will mean a move from focusing on past performance (skills and knowledge) to a focus on potential (talents). After all, who's to say what education and experience you'll need to do well in roles that experts are predicting will emerge in the future, like Tech Ethicist, Digital Strategist, or Data Architect?

For decades we've labelled talents/soft skills as "intangibles;" so how can they be quantified? The answer lies in a scientific practice that's existed for over 50 years.

Quantifying Potential with Industrial/Organizational Psychology

Industrial/Organizational (I/O) Psychology is the study of human behavior in the workplace.³⁴ The practice of I/O Psychology applies psychological theories and principles to organizations. I/O Psychologists contribute to an organization's success by improving performance, motivation, team effectiveness, job satisfaction, innovation, occupational health and well-being, and more.

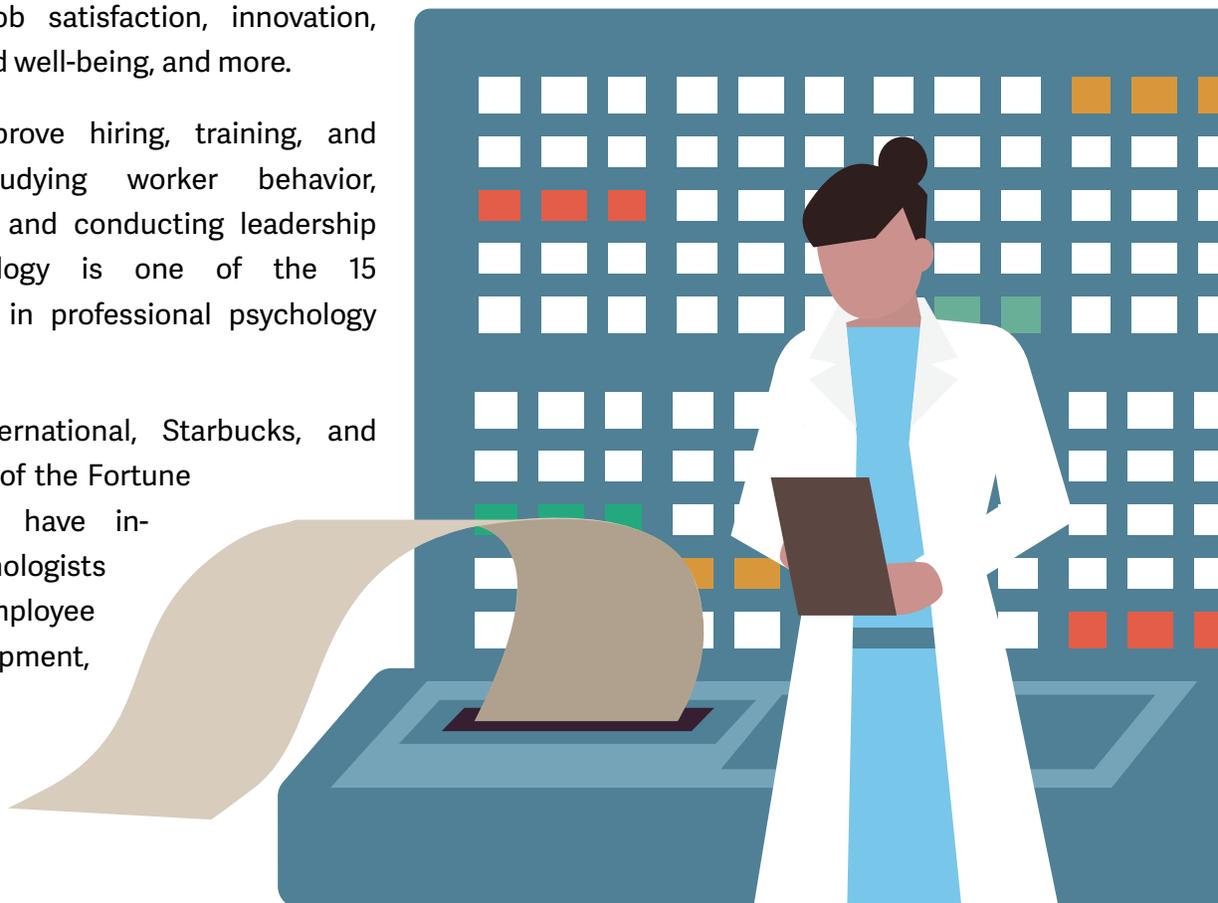
I/O Psychologists improve hiring, training, and management by studying worker behavior, evaluating companies, and conducting leadership training. I/O Psychology is one of the 15 recognized specialties in professional psychology in the United States.

Amazon, Marriott International, Starbucks, and Walmart are just a few of the Fortune 500 companies that have in-house I/O Psychologists improving their employee selection, development, feedback, and more.

Top performers produce 80% of an organization's output.³⁶

While the "organizational" side of I/O Psychology focuses on understanding how organizational structures and management styles affect individual behavior, the "industrial" side involves understanding how to best match individuals to specific jobs. A priority on this end of I/O Psychology is to gather evidence that identifies which selection methods best predict performance, such as personality tests.

One of the biggest challenges facing I/O Psychologists is disrupting the age-old usage of pseudo-personality tests like Myers-Briggs (MBTI) and DISC, in selection processes.³⁵ These tests, unlike I/O Psychology-validated selection methods, do not



predict performance, do not measure personality as a spectrum, and do not measure job relatedness. These tests may tell you which *Harry Potter* character you're most like, but they can't predict how you'll perform in a job.

Industrial/Organizational Psychologists use psychometric tests to quantify individuals' cognitive ability (problem solving skills, social intelligence) and personality. The output of these assessments is a deep and holistic understanding of the individual's unique talents.

Extensive research has shown that combining the results of personality and cognitive ability assessments will typically have twice the ability to predict job success than either type of assessment alone.³⁴ Not to mention these multidimensional assessments are 4X more accurate at predicting on-the-job success than a resume.

On top of their predictive power, psychometric assessments are valuable because of their:

- ◊ Objectivity. Unlike other datasets that we use to get insight on how people will perform in a job (like resumes) valid psychometric assessments prove no adverse impact on certain minority groups. They provide a more equitable method of determining job fit.
- ◊ Holistic nature. Psychometric assessments give a full picture of a candidate's potential, unlike resumes and applicant tracking system (ATS) knockout questions, which can only offer a glimpse at best. Even from an assessment that only takes a candidate 25-minutes to complete, I/O Psychologists can gather detailed insights that accurately predict how a candidate will perform in multiple facets of the job.

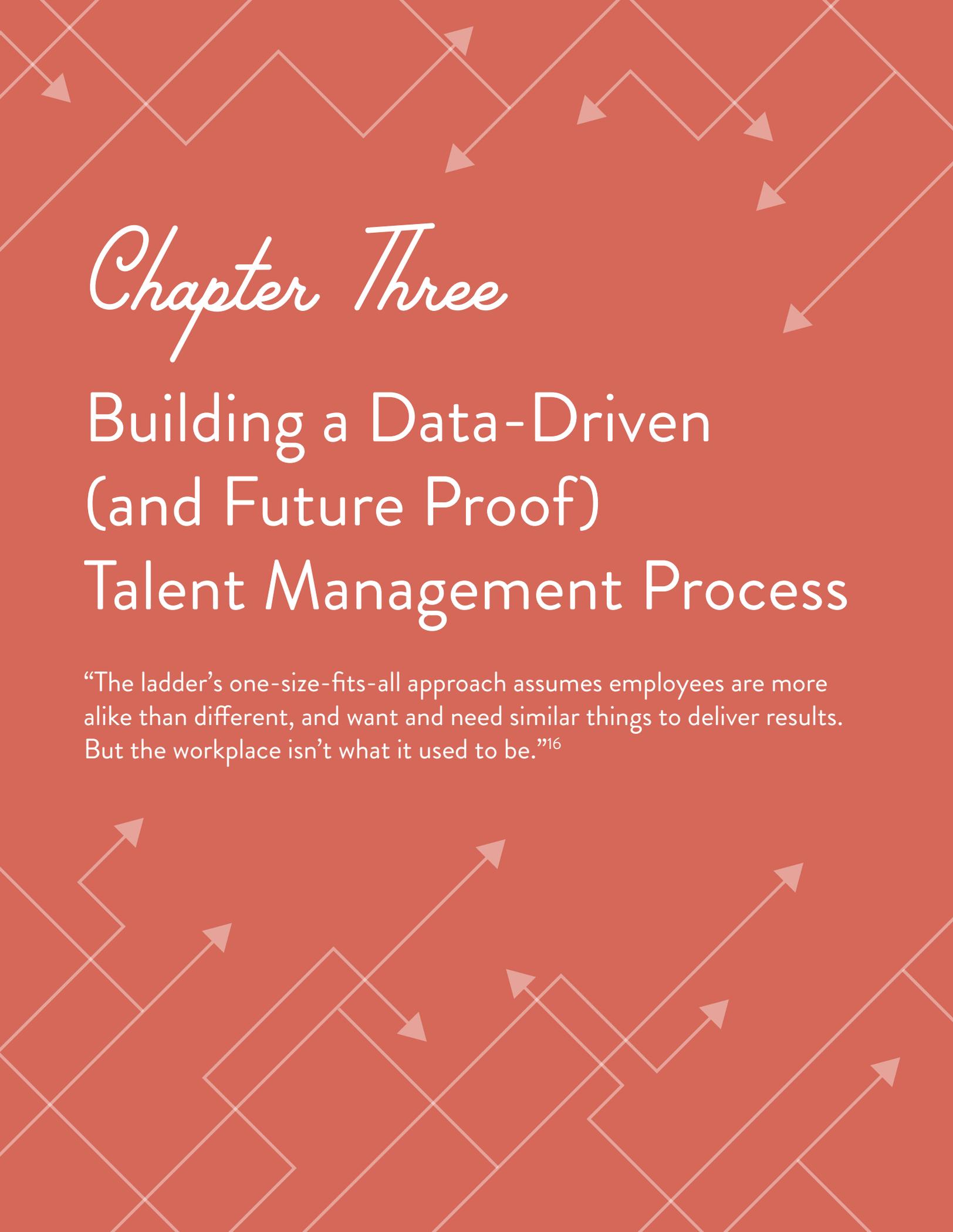
- ◊ Scalability. Online assessments can easily be distributed to your organization's employees and job seekers. The scalability of collecting, storing, and matching that talent data to roles is multiplied when psychometric assessments are backed by AI. But more on that in chapter four.

This is exactly the kind of universal talent data we talked about in chapter one — talent data that is valid, consistent, accessible, and granular. This is data that can predict on-the-job success without looking at past experience — which is exactly the kind of data that talent experts need when taking a talent flow approach and migrating people across departments and organizational silos.

Typically, organizations who have quantified individual's talents and built out a universal dataset derived from I/O Psychology have seen these benefits:

- ◊ Hired more top performers
- ◊ Mitigated risk and uncertainty
- ◊ Transformed subjective and biased hiring practices
- ◊ Gained the ability to measure the health of their talent pipeline

You'll notice that these are very talent acquisition focused; whereas assessment providers are more readily available for talent acquisition teams, these datasets have historically not been leveraged universally across all facets of talent management. But in order to get the right people in the right seats, organizations can no longer afford to throw out this candidate data the second someone is hired.



Chapter Three

Building a Data-Driven (and Future Proof)

Talent Management Process

“The ladder’s one-size-fits-all approach assumes employees are more alike than different, and want and need similar things to deliver results. But the workplace isn’t what it used to be.”¹⁶

As mentioned previously, the future of work is going to demand an approach to talent that breaks down organizational silos. The same goes for the walls that have been put up between talent acquisition and talent management.

For many enterprise organizations, talent acquisition departments operate separately from talent management departments. Although there may be a lot of communication between these teams, ultimately they are separate business units; talent acquisition hires people, and talent management develops and moves them. That's the way it's always been.

The siloing of talent acquisition and talent management, consequently, results in the siloing of data collected and stored by the respective business unit. For instance, data collected by talent acquisition specialists during the hiring process (including ATS knock-out questions, talent assessment results, and interview responses) is often thrown out once a candidate reaches the "hired" stage in an ATS pipeline. If it's not thrown out, it sits in a HCMS (Human Capital Management System) and collects dust. But this data could prove useful to talent management teams when making professional development and career pathing decisions about employees.

The future of work will trigger an increased need to hire talent that will meet future business needs, and move them in a predictive manner accordingly. Without a universal predictive dataset, talent acquisition and talent management departments will miss key data points that could potentially be crucial to matching people to roles that leverage their talents. Unpredictive career pathing on a company-wide scale could be detrimental enough to render an organization obsolete.

Talent acquisition teams and talent management teams will need to work in tandem in an unprecedented capacity. Universal talent datasets stemmed from Industrial/Organizational Psychology not only have the power to inform predictive talent acquisition decisions, but can transform how talent management operates in the future of work. Datasets that show, at scale, which employees are natural innovators, which are gifted communicators, and which can adapt with ease is game-changing knowledge for a company to possess. Organizations that can make predictive career pathing, professional development, and high-potential decisions with this kind of talent data will determine the winners from the losers in this new world of work.





Career Pathing

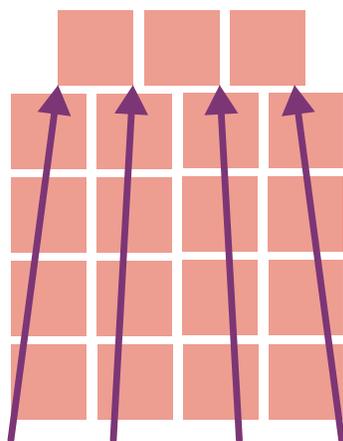
When talent management experts and business

leaders hear the predictions concerning all the jobs that will be lost and created, their first instinct may be to panic — will this mean mass layoffs, while simultaneously hunting for new talent at scale to fill these new and unfamiliar jobs? Future-ready organizations, however, recognize that the best use of resources (not to mention, overall employee morale) is to move current employees from dying jobs to emerging roles.

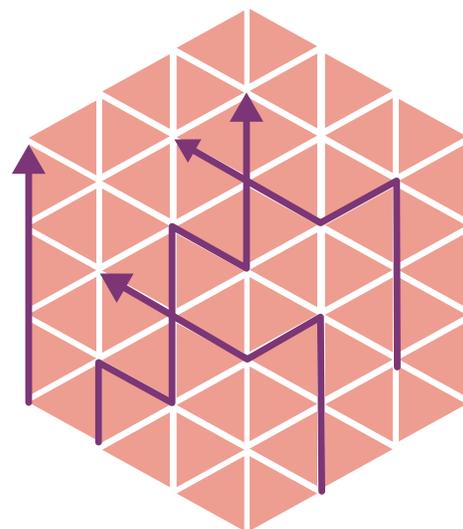
As we mentioned in chapter one, employees' skills and knowledge will no longer cut it when it comes to matching people to jobs, especially when these jobs spring up suddenly with no established educational or career path that historically leads to such jobs. Employees' talent data — their innate patterns of thought, feeling, and behavior — will need to dictate career paths across departmental silos. The age-old "career ladders" will need to become "career lattices."

By breaking down these silos and liberating people to flow across business units, organizations may realize other benefits besides simply filling empty roles. Employees today — especially millennial employees, which will make up 50% of the workforce in the next two years³⁷ — desire a variety of work experiences. A career lattice (see Figure 3) can offer that kind of experiential learning to employees, benefiting employers by retaining talent that acquires diverse work experiences. This is especially game-changing to an organization's nimbleness when these kinds of employees enter managerial positions. Managers who

Figure 3 - Career Ladder vs. Career Lattice



Example of linear career paths



Example of varied paths for growth and development

have worked in a variety of departments and levels more naturally and readily understand how decisions made in one business unit or on an executive level impact all facets of the organization.



Learning & Development

The importance of valuable employee development has become clear in recent years. LinkedIn's 2018 Workforce Learning Report found that 93% of employees would remain with an organization longer if it invested in their career development.³⁸ In the past year, average spend on external training products and services has increased by 32.5%.³⁹ But only one in four senior managers report that training is critical to business outcomes. Why? Because of the overemphasis on one-off, hard skills development. This may look like training courses or microlearning platforms, which often focus on role-specific skills and knowledge. Organizations are focusing

on developing their talent for the here and now — but not for the future.

In order to implement a development strategy that's organized around future business needs and goals, you'll need to shift your focus away from *one-off, hard skills* development to *continuous, talents-based* development. Talents are transferable across the different roles and projects that are encountered during an employee's career journey.

Take a look again on those job descriptions of potential future jobs on page 8. A beginner's Google Analytics class or a 3-day product management conference won't prepare people for jobs like Tech Ethicist, Digital Strategist, or Data Architect. Rather, the people who will succeed as they step into these roles will be the ones who worked with their manager to develop their communication skills, adaptation ability, and eye for innovation.

And this is the kind of development that employees crave. One survey found that 57% of the business leaders ranked soft skills over hard skills as the areas they need their employees to develop.⁴⁰

As roles change and the game of musical chairs begins, having a team of employees with strong soft skills (and a way to quantify those skills) will make adapting and transitioning your teams a much easier mountain to climb.



HIPO (Emerging Leaders)

Attempting to accurately identify individuals with future leadership potential is a challenge felt by many — 66% of organizations invest in such programs.⁴¹ However, only 24% of senior executives at these firms consider the programs to be a success,⁴¹ and up to 40% of internal job moves made

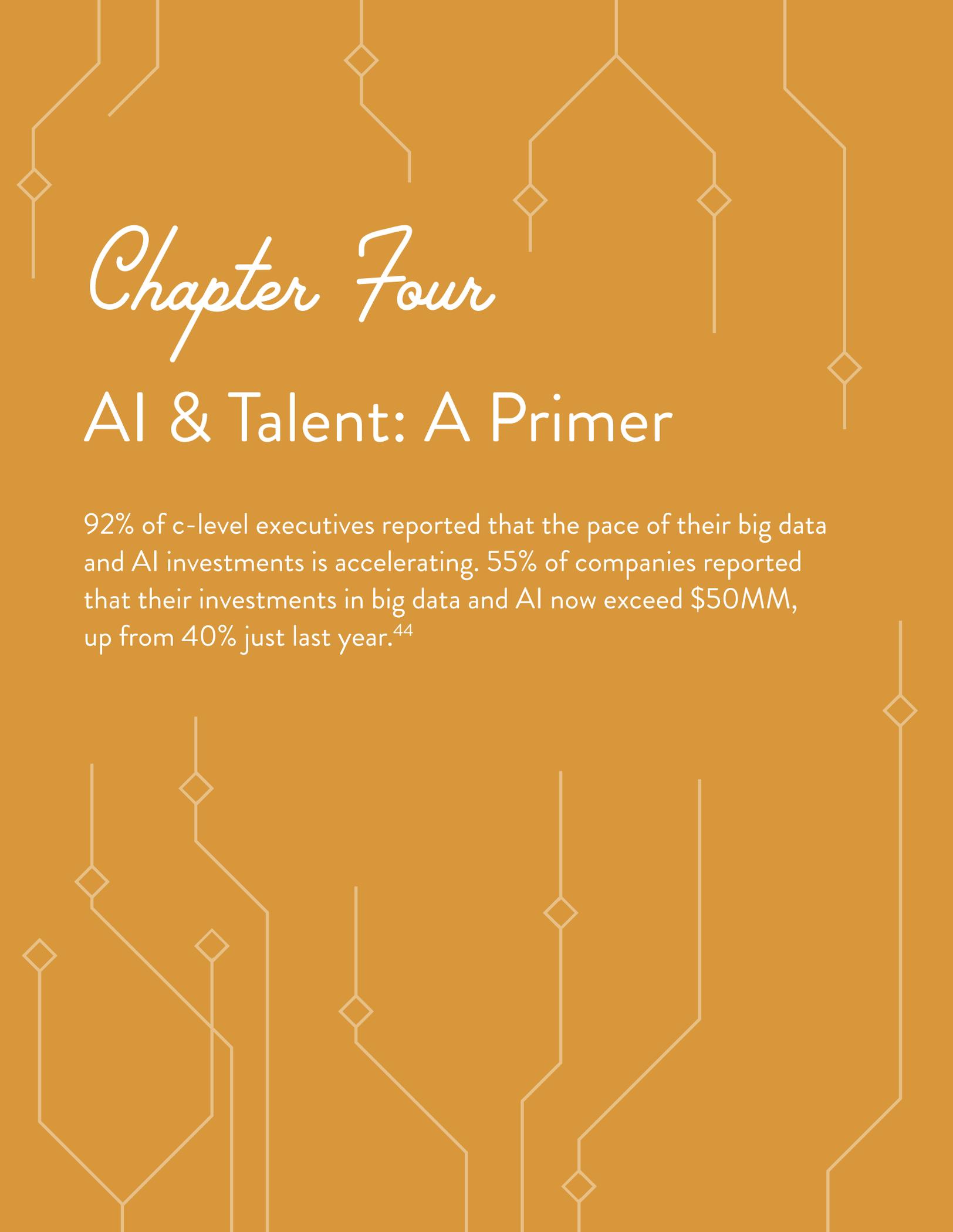
by these “high-potential” individuals result in failure.⁴²

Like hiring, talent professionals lack a predictive, scientific method for identifying leadership potential. Just because someone is a fantastic individual contributor does not mean that they'll be a fantastic leader. The individuals placed in these programs are typically selected based on past performance, an unreliable measure of actual leadership potential, or by the selector's subjective assessment of their “leadership quality” — a clearly invalid, unscalable method.

Industry leaders and I/O Psychology experts have identified a leadership talent model proven to predict future success.⁴³ Using such a model provides an objective, quantifiable methodology for identifying individuals with the potential for future success in a leadership position. Talents like learning agility, drive, and resilience are fundamental to a leader's success. These talents are transferable, quantifiable, and most importantly, predictive.

Now that you have an understanding of how talent datasets founded in I/O Psychology can help your organization make more predictive decisions at every stage of talent acquisition and talent management, how do you begin collecting these data points at scale? After all, historically, the practice of I/O Psychology has been implemented by expensive and non-scalable consulting services.

The answer may lie in the buzzword of the decade—AI.



Chapter Four

AI & Talent: A Primer

92% of c-level executives reported that the pace of their big data and AI investments is accelerating. 55% of companies reported that their investments in big data and AI now exceed \$50MM, up from 40% just last year.⁴⁴

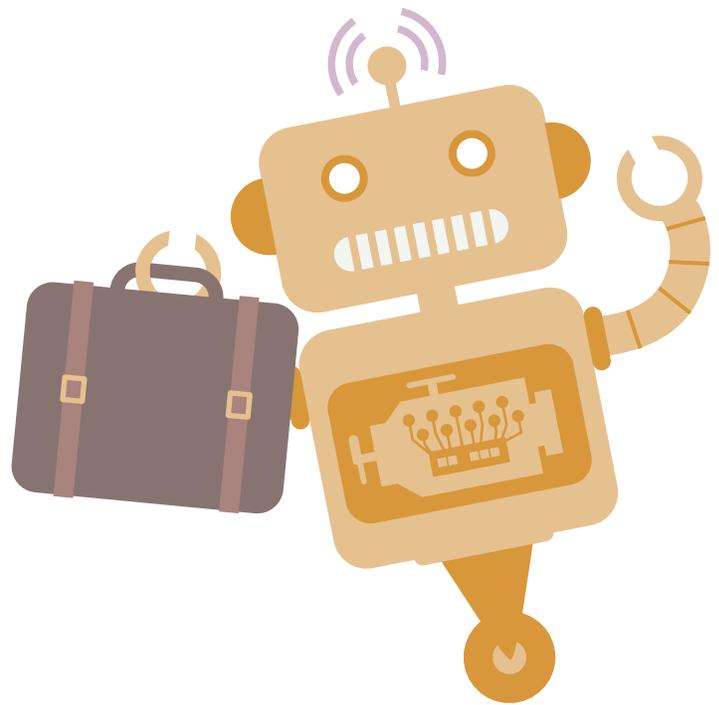
IBM'S artificial intelligence (AI) solution, Watson, is a Jeopardy! champion and has appeared in Super Bowl commercials. Google and Amazon offer AI assistance in a growing number of households. AI is becoming increasingly widespread and democratized in its uses. So, it's no surprise that talent recruitment professionals are turning to AI and machine learning to future-proof their talent practices. Integrating artificial intelligence can streamline processes and save resources.

AI is poised to impact the entire employee lifecycle. A stretched HR professional, swamped with resumes and interview scheduling while still trying to meet the needs of current employees and engage in strategic workforce planning, can turn to AI to automate routine tasks. With software solutions processing information efficiently and without tiring — not something we can often say about humans — the advantages are obvious.

This technology can change how you recruit, your strategy for encouraging employee learning and development, and even performance management and coaching. It already is.

AI and Talent Practices

The benefits of leveraging universal talent data and AI go beyond hiring and onboarding the right candidate. Understanding your talent (and having the dataset to back it up) is at the root of talent management. Organizations are increasingly using predictive data for hiring — but many have failed to translate this information into other talent processes and decisions.



Putting the Human in Human Resources

While AI and machine learning applications may make a talent professional's job easier, they don't necessarily make hiring more reliable or predictive (see Figure 4). Automated resume screening just perpetuates the resume bias discussed in chapter two, undermining efforts to become more inclusive. Programming machine learning to automate inconsistent processes only saves time and resources in the short-term — high turnover or hiring low performers is costly in the long-term. In short, AI isn't addressing current problems or pitfalls in the hiring process — it's just automating them.

Yes, AI offers a level of scalability and efficiency, but the real gift of AI technology comes from expert augmentation. Success comes from streamlining practices to marry technological progress with the human element of talent acquisition and talent management. Talent professionals must proceed with care.

Figure 4 - AI is poised to impact every stage of the employee lifecycle

	AI Tech in Use	Benefits	Potential Pitfalls
Recruiting	<p>Resume screening.</p> <p>Analysis of blogs/social media profiles⁴⁵ to identify candidate attributes that might not show up on a resume.</p> <p>Recruiters also use machine learning to proactively find the right people for openings with software that searches the Internet to source prospective candidates.</p>	<p>Expedience.</p> <p>Added insight into candidates, beyond resumes.</p>	<p>Enshrines bias. For instance, one AI solution designed to identify high performers⁴⁶ via social media used criteria such as whether candidates played lacrosse and read Harry Potter.</p> <p>Status updates or Instagram stories don't correlate with future job performance.</p> <p>Runs the risk of EEOC noncompliance.</p> <p>Scouring the Internet for candidates is a skill-centered solution and doesn't take into consideration human data points such as critical problem solving or collaboration, which can prove more valuable in the long-term.</p>
Interviewing	<p>Video-based interviewing analyzed by AI can help determine an interviewee's mood, whether or not the candidate is telling the truth, and more.</p> <p>AI-driven chatbots on business sites to offer applicants status updates.</p>	<p>Efficiency. Unilever⁴⁷ saw its average time for a candidate to be hired was cut from four months to four weeks.</p> <p>Helps an organization to appear more tech-savvy to the job seeker.</p>	<p>Requires thoughtful oversight. Be wary of introducing or perpetuating selection bias⁴⁵ into input data, which could narrow the search criteria to limit opportunities for underrepresented groups.</p>
Onboarding	<p>Virtual assistants take over the routine tasks of employee onboarding.</p>	<p>Programming a chatbot to tell new employees whether vision is deductible or the percentage of 401k contribution match, frees HR reps to handle more challenging issues.</p>	<p>Lose the opportunity to engage on a human, welcoming level with new hires.</p>
Feedback	<p>Mobile-friendly tools gather and share immediate feedback.</p> <p>Applying machine learning to identify themes and recurring issues⁴⁸ in employee surveys.</p>	<p>GE's "PD@GE" app (which stands for "performance development at GE"⁴⁹) lets people give or request feedback at any point in the year, without having to wait for an annual review.</p> <p>With AI text analysis, the algorithms can do the grunt work searching through mountains of data.</p>	<p>Performance reviews hold people accountable for past behavior at the expense of preparing talent for the future. Performance review apps don't resolve this problem; they simply scale it.⁵⁰</p>

Chapter Five

Humanizing Hiring with Technology? Yep, that Works

61% of CEOs do not believe they are recruiting fast enough, and the process has become enormously complex.⁵¹

In late 2018, information leaked that between 2014 and 2017, Amazon tried to build an algorithmic system to analyze resumes and suggest the best hires.⁵² It failed. Hard.

After Amazon trained the algorithm on 10 years of its own hiring data, the algorithm repeatedly became biased against female applicants. The word “women,” like in women’s sports, would cause the algorithm to rank applicants lower.

AI is not inherently biased or unpredictable — but its outcomes depend completely on how it is trained (see Figure 5).

Figure 5 - Good AI vs. Bad AI

	Bad AI	Good AI
Data Quality	Poor data inputs. Learns from inputs that have poor predictability and high bias, such as keyword-searching resumes, scraping social media profiles, etc.	High quality data inputs. Learns from the expertise of I/O Psychology decision-making, and selection methods proven to predict success, i.e. problem solving ability, social intelligence, personality, talent-based competency models, etc.
Automation vs. Augmentation	Automated, i.e. simply automating human decision-making. For example, if recruiters are more likely to shortlist resumes with male names, the AI will do the same.	Augmented, i.e. helping humans do complex tasks that are either beyond human cognition and/or inefficient for humans to do. Plum is classified as Expert Automation & Augmentation Software (EAAS).
Human Intervention	Black box. We trust the algorithm’s output without “looking under the hood” to understand how the AI came to a particular conclusion. Amazon learned this the hard way when they opened up their hiring AI’s black box to discover the algorithm had learned to rank resumes with the word “women” lower.	Human-in-the-loop. This involves humans influencing algorithm decision-making and rectifying when the AI replicates human bias. At Plum, we provide detailed visualizations and reporting to explain how our algorithm comes to conclusions about job fit.

To realize AI's full potential in talent acquisition and talent management, it's essential to identify the difference between *automation* — artificial intelligence making current practices (which are often biased and unpredictable) more efficient and automatic — and *augmentation*, i.e. "helping humans do countless complex tasks that are either beyond human cognition and/or inefficient for human beings to do."⁵³ In other words, AI that's smarter. AI that utilizes augmentation over automation is often referred to as Expert Automation & Augmentation Software (EAAS).⁵⁴

Genuine attention should be paid to the lessons you're teaching the machines sifting through the data or the AI making decisions. If these are trained to make choices in the same way humans would — i.e., *automation* — this simply perpetuates a flawed system. Amazon's failed hiring algorithm is one example of this automation going horribly wrong.

It's up to talent and HR professionals to augment AI software with their expertise, drawing from lessons already learned to check validity and attempt to remove risk by considering in detail how algorithms are structured or the data input is classified.

Augmenting with I/O Psychology

To truly gain AI's advantages, an organization must incorporate the vast knowledge of the global community of Industrial/Organizational Psychologists. As we mentioned in chapter two, scientists at the likes of Harvard, Northwestern, MIT, and Columbia have dedicated decades of research to identifying more predictive and objective hiring methods. Companies like Apple, AT&T, PepsiCo, and General Motors employ I/O Psychologists to improve facets of talent management.

This can take the practice of, for instance, automated resume scanning — which can't distinguish truth from fiction, perpetuates racial bias, and doesn't predict on-the-job performance⁵⁵ — up a notch. Marrying the advancements of I/O Psychology and augmented AI technology helps prepare for the future of work by focusing on core traits that are transferable to the new jobs on the horizon. This strategy holds value beyond the hiring stage, translating to long-term success in strategic workforce planning.

While the move to chatbots and video interviewing tools with facial scanning technology represent adoption of AI in the name of efficiency,⁵⁶ augmenting AI tools with I/O psychometrics offers both efficiency and predictability. Instead of automating human error into talent processes, an enlightened AI approach works better, not just faster.

"It blew my mind that there are 10,000 industrial organization psychologists in the world, they go to school, they get Ph.Ds in this, there's a whole body of predictive science out there that tells us what predicts a top performer and what doesn't, but yet 98% of the world is using poor quality, crap data that does not predict that, and only introduces a boatload of bias."

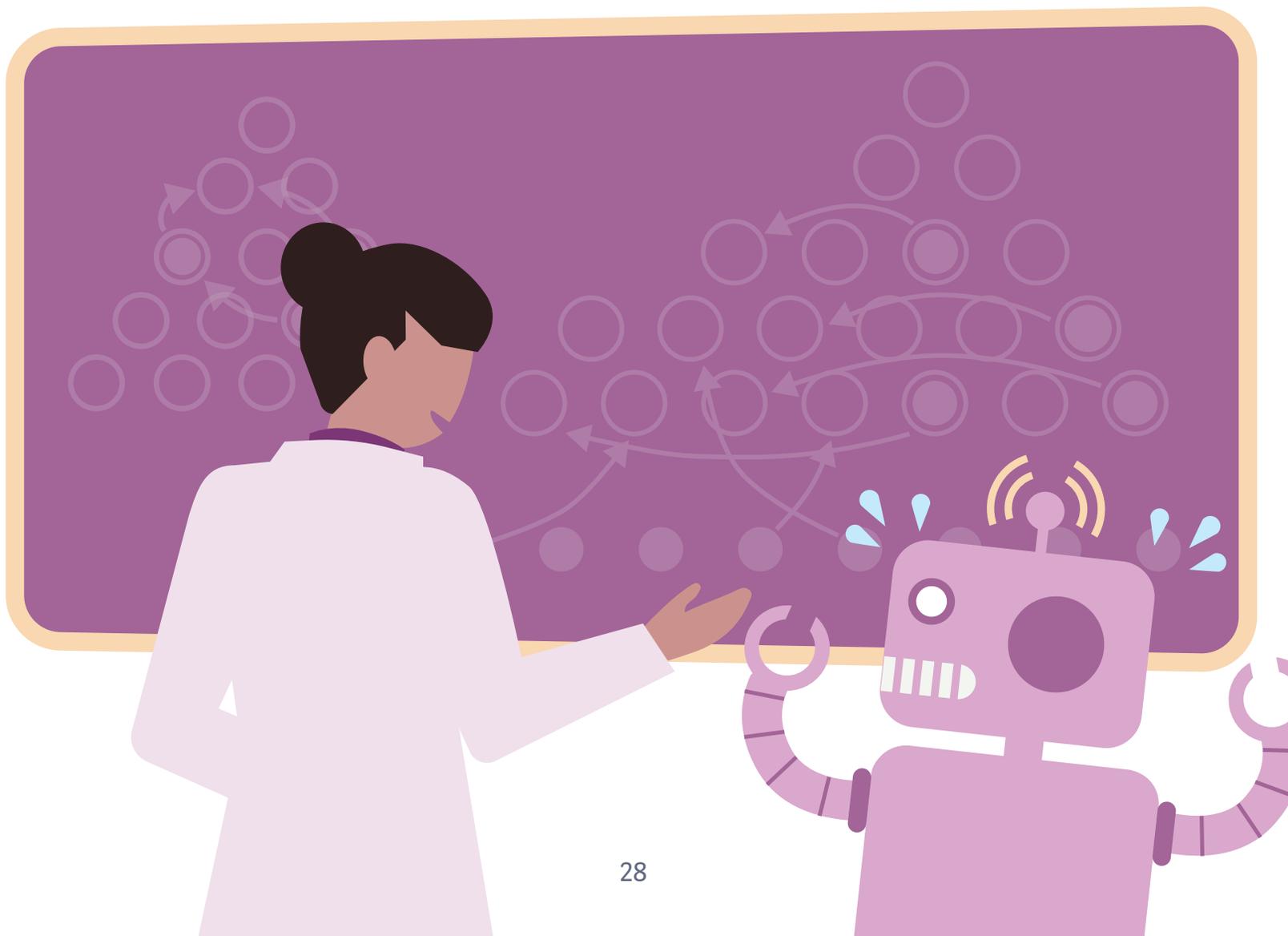
-Caitlin MacGregor, CEO of Plum⁵²

Human-in-the-Loop Remains Essential

Note that augmented AI doesn't automate people out of jobs. Ultimately, human input is necessary for augmented AI to succeed. AI that incorporates human oversight (called human-in-the-loop machine learning) is the best way to avoid "black box" AI that makes decisions without traceable explanation or reasoning.⁵⁷ Bring a diverse group of business stakeholders together to determine AI objectives and outcomes. This can help program an AI algorithm to ask the right questions and make the best judgement calls and decisions, which pays off in more nuanced insights.

AI must complement rather than replace human expertise. HR and talent professionals know their stuff; machine learning can't do all the thinking for them. As a CA Technologies blogger noted, "While machine-driven decisions may be right 80% of the time, the (sometimes disastrous) consequences of being wrong 20% of the time wipe out the productivity gains."⁵⁸

Simply incorporating AI automation risks turning human resources into a process-driven machine that manages people as a binary batch to be shifted from one process or department to another. With the right augmented AI tools in place, hiring and talent professionals can get to better know candidates and employees and offer more personalized attention to each unique human in the company.



Chapter Six

Advantages of a Future Workforce Strategy Founded in AI

“Fast” talent reallocators are 2.2X more likely to outperform their competitors on total returns to shareholders.⁵⁹



Preparing a future workforce strategy to

keep pace with disruption wasn't always such an ambiguous challenge for talent management strategists. In the past, new major skill requirements might develop over decades. There was time to assess, promote, and coach. Today's pace and scale of disruption demands we adapt now, and adapt continuously. It demands that we find better ways to move talent across organizational silos. Talent-based AI-enabled hiring practices can help you keep up where traditional competency models no longer can.

Only 53% of CHROs surveyed by the World Economic Forum are reasonably or highly confident regarding the adequacy of their organization's future workforce strategy.⁶⁰ Why is it so challenging?

- ◊ Decision-making is inhibited by lack of understanding of disruption ahead
- ◊ Resource constraints and short-term profitability pressures
- ◊ Lack of strategic workforce planning (SWP), which aligns workforce and organizational goals.

Most importantly, competency models used to identify, coach, promote, and retrain talent can't effectively anticipate the needs of new, emerging roles. A talent management strategy powered by expert augmented AI which employs predictive data, like talents, allows you to effectively develop a future-proof strategy.

Only 30 percent of HR professionals are satisfied with their organization's ability to meet its internal talent mobility goals.⁶¹

Planning for the Future

McKinsey has identified three horizons of organizational growth. Horizon One is focused on improving performance to maximize the value of "core businesses most readily identified with the company name and those that provide the greatest profits and cash flow." Horizon Two embraces emerging opportunities and ventures requiring "considerable investment" but "likely to generate substantial profits in the future." Horizon Three "contains ideas for profitable growth down the road."⁶²

It's no longer enough to focus only on the first horizon. For future success, your organization needs to pay attention to all three horizons concurrently. This is particularly challenging for human resources teams



and talent professionals trying to predict what will be required of employees in the future.

Augmented AI attempts to help an organization move beyond a focus on skills and experience alone.⁵³ Drawing on decades of deep research into talents and attributes that indicate an individual's adaptability, creativity, problem solving, critical thinking, or ability to communicate—characteristics that will be needed no matter the job title — this approach develops talent pipelines that are dynamic and reactive.

Predictively Filling the Talent Pipeline

Adapting to the future of work requires talent acquisition and talent management to go beyond “one and done” processes, to instead take an active, ongoing approach to recruiting, hiring, growing, and advancing your talent. As we mentioned in chapter three, the deep talent data you acquired during the hiring phase can be used throughout the employee lifecycle to drive strategic workforce planning. You protect your investment in people by using available data and the power of AI and machine learning, to not

On average, by 2020, more than a third of the desired core skill sets of most occupations will be comprised of skills that are not yet considered crucial to the job today.⁶⁰

Between 2016 and 2030, demand for social and emotional skills will grow across all industries by 26 percent in the United States and 22 percent in Europe.²⁸

only identify great candidates for the short-term, but also build excellent teams for the long-term.

There is a proliferation of historical, descriptive, and predictive data available today—yet many organizations don't actually apply the information they collect in the recruitment phase in relation to advancement and development decisions. Many talent acquisition processes are relatively static. An organization posts for Job X. Candidates apply, and are screened based on the requirements of Job X. A shortlist is created based on resume qualifications. Skills-oriented screening further shortens this list, eventually a candidate is hired, and the HR team moves on to the next job opening – likely leaving the unselected candidates' data to collect dust. The cycle of sourcing, recruiting, and headhunting costs begins again.

Why, then, are talent professionals not actively working to prospect their own existing candidates? The final candidates in this scenario have shown interest in the brand, and ideally the organization now has a sense of their talent profiles. With universal talent data, the organization can then assess an individual applicants' fit against multiple other roles – potentially discovering a great fit for Job Y (with no extra sourcing costs). The missing step here for many organizations is the uniform data required to perform this type of analysis.

Deploying Talent for the Future of Work

Too few organizations are working to actively quantify applicants and existing talent in a meaningful, predictive way. Instead of focusing on education and previous job experience, a predictive talent pipeline will identify attributes such as empathy, initiative, advanced communication, creativity, critical thinking, decision making, and complex information processing — talents which can be transferred across positions.

Using these talent insights, an enterprise can ensure that it has the right team in place to reach its goals (efficiently and effectively) in the short-term. Simultaneously, it can proactively plan for the future to ensure it is investing in the right development areas to help its people grow and advance into future roles. Working with an organization with a focus on equipping its employees for the future can improve employee engagement and increase their motivation to innovate and adapt.

Accurately identifying and assessing the talents critical for the future of work is difficult (we're lucky to be able to honestly assess these in ourselves!).

That's where expert-augmented AI offers value. A psychometric assessment founded by I/O Psychology and automated by AI can test, sort, and screen individuals for these characteristics to make recruiting more productive and predictive.

Taking a more adaptive, forward-thinking approach, an organization might also use its augmented AI tech to generate a candidate database which can be used to identify an individual's fit across roles. This database would also enable career pathing and succession planning by predicting existing employees' fit across roles, teams, departments, and geographies. This AI powered database has the ability to utilize people data to identify opportunities and predict job fit, freeing up time for HR professionals to focus on the human aspects of their jobs.

Augmented AI integrating the knowledge gleaned from I/O Psychology enables talent professionals to:

- ◇ Better identify candidates — not for just one job, but future opportunities .
- ◇ Facilitate objective assessment — let AI identify what ways of managing people's work are most effective and which characteristics translate best to certain roles, retention success, or real, measurable contributions.
- ◇ Embrace talent diversity — with objective, consistent, and reliable candidate identification done by AI platforms, businesses can advance workforce parity.
- ◇ Encourage employee growth — identify those who are most likely to show flexibility in the process of lifelong learning and can best collaborate and innovate.
- ◇ Advance strategic workforce planning based on deep data insights into talents and behavior that can allow an organization to better plan for growth, innovation, and changes in the marketplace.

With the help of a universal dataset, you can manage current and potential employees, establish standards, and use data to develop long-term plans for workforce needs, reduce attrition, and boost engagement and innovation.⁶³ All while preparing for the future of work.

Key Takeaways



Industrial/Organizational Psychology can quantify these in-demand talents.

The outputs of psychometric assessments is exactly the kind of valid, accessible, granular, and universal talent data organizations will need to match people to jobs at scale.



Talent Acquisition and Talent Management departments will need to work in tandem like never before.

Although historically used for talent acquisition, universal talent datasets founded in Industrial/Organizational Psychology will also have to be leveraged by talent management teams to make predictive career pathing, high-potential, and learning & development decisions.



AI is poised to impact the entire employee lifecycle.

Marrying the advancements of I/O Psychology and augmented AI technology helps prepare for the future of work by focusing on core traits that are transferable to the new jobs on the horizon.



Adapting to the future of work requires talent acquisition and talent management to go beyond “one and done” processes.

In the future of work, organizations will buckle under the strain of resources if they continue pouring costs into the cycle of sourcing and recruiting new talent. They will need to rely on their universal talent datasets to prospect from their existing talent pool (externally and internally).



The fourth industrial revolution will be a disruption unlike any other.

Jobs will go extinct at an unprecedented rate due to automation and AI; at the same time, net new roles will spring up at an equal (if not faster) pace.



Talent flow is the key to remaining nimble in this new world of work.

The future of work demands an approach to talent management that breaks down organizational silos and liberates people to follow career paths that flow across the organization.

Key Takeaways



A universal talent dataset is critical to keeping organizations nimble with talent flow.

For too long, business units have collected and stored their own people data. The result has been an incompatibility of people data between departments. In order to predictively get the right people in the right seats, organizations need to collect and store universal people datasets.



The new world of work will demand new skills.

“Soft skills,” or talents, measure potential, not just past performance. Quantifying talents will be integral to matching talent to emerging new roles. Talents that will be especially valuable include communication, critical thinking, and creativity.

In Closing

We hope that this e-book was able to provide some hope in what is otherwise treated as a rather fear-mongering topic — the rise of automation and what that means for workers. The transition to this new world of work certainly won't be an easy one, and there will be winners and losers; the organizations who justify maintaining the talent management status quo because “that's just the way it's always been done” will be the ones to die first. Forward-thinking organizations, however, understand that a nimble workforce will give their company a competitive edge in this new reality. Of course, that's easier said than done — but certainly not out of reach. We hope that this primer on talent and the future of work equips you to take those first steps towards preparing your organization for the future of work.



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