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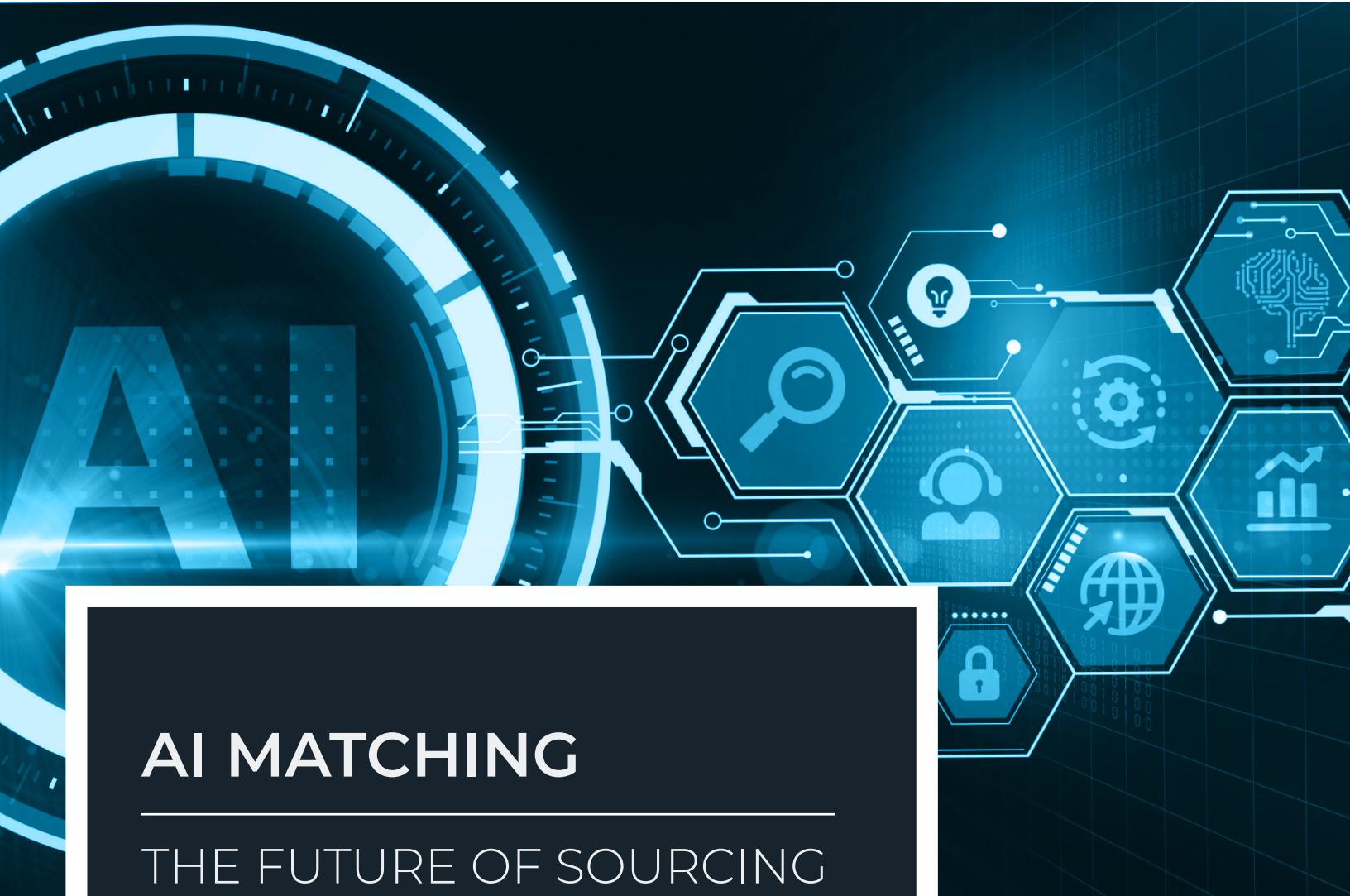
AI MATCHING

THE FUTURE OF SOURCING

INTRODUCTION:

The interest and investment in AI matching has skyrocketed over the past year. According to Aptitude Research, 40% of enterprise companies are using some AI matching capabilities to support their talent acquisition and sourcing efforts and 37% of enterprise companies are evaluating their options. AI matching and talent intelligence has emerged as a critical part of the TA tech stack with several providers offering advanced capabilities and new players emerging every month. Additionally, sourcing providers, ATS providers, assessment providers, and ERP providers are all trying to crack the code on matching. And, unfortunately, not all providers are getting it right.

Companies want a quick and easy way to connect the right candidates to the right roles and the right roles to the right candidates. They want to speed up the hiring process, reduce costs, and save recruiters' time particularly when filling high-volume and hard to fill roles. But by focusing solely on efficiency, they often neglect the most critical aspects of AI matching, including quality and ethics. AI requires ethical due diligence at both the organizational and industry level. It requires companies to ask tough questions to better understand how candidates are being evaluated, stack ranked, and moved along in the process. AI is here to stay. When done right, AI matching improves the candidate experience, reduces bias in hiring, and improves the quality of applicants.

If AI matching is the future of sourcing and talent acquisition, companies must take a critical look at the providers they are evaluating, the algorithms that they have in place, and the impact it has on their fair and equitable hiring practices. This report is based on data collected in 2021 and looks at the state of AI matching to help answer the following questions:

According to Aptitude Research, on average,

40%

of enterprise companies are using some AI matching capabilities to support their talent acquisition and sourcing effort

Some of the questions addressed in this report include:

- What is driving the decision to invest in AI matching today?
- How is AI matching being used today to support sourcing efforts?
- What capabilities are the most critical when evaluating providers?
- What options do companies have when evaluating providers?
- What impact (both negative and positive) does AI matching have in talent acquisition?

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Methodology

Quantitative Research: 426 responses of talent acquisition and HR director level and above

Qualitative Research: Series of interviews in 2021 on the challenges, strategies, and technology influencing decisions around AI matching

Top Findings

1　Ethical AI Is Not the Norm:

The role of ethics in AI is the most important consideration in AI matching and it is often the most ignored. Companies are looking for a quick fix to their recruitment challenges and tend to look at solutions that will save time and money without understanding the long-term implications on building a fair and equitable recruitment process. With adverse impact EEOC regulations and upcoming European regulations, companies must look at ethical AI in the hiring process and ask difficult questions to determine which providers will hold up.

2　Understand the Difference Between AI Matching for Sourcing and Screening:

Although, it may seem that the use cases are similar, AI matching for screening is more challenging than it is for sourcing. AI matching used to screen active applicants must pass the standards compliance. When an active applicant is being screened, OFCCP and EEOC compliance kick in and scrutiny is applied. It is looking beyond public information and understanding qualifications and data that a candidate provides to help inform decision-making. Companies need to consider this difference when evaluating providers.

3 **ATS and CRM Providers Are Offering Efficiency:**

AI matching requires deep domain expertise and a commitment to ethical AI, security, and compliance. Many ATS and CRM providers are offering matching capabilities as part of their core solution. They are enabling companies to quickly rank and score candidates, but are not always offering transparency around their algorithms or how decisions are being made. They also do not charge separately for these capabilities and do not get questioned on their methodologies. Companies interested in using AI matching to create a more fair and equitable hiring process should look at providers committed to both efficiency and ethics.

**4** **AI Matching Provides Value in Internal Mobility:**

AI matching can provide tremendous value to internal mobility efforts. It can help companies understand their employees and identify the right opportunities for promotion and development. Many of the providers in the market are integrating with HRIS systems and talent management systems to help support internal mobility efforts.

5 **Transparency Is Critical:**

Many providers use "black box algorithms" that are not transparent or shared with candidates. AI solutions should be fully transparent with candidates on how their information is being used and how decisions are being made. Transparency should include why candidates are shortlisted and ranked during the matching phase. AI also enables companies to share specific feedback with candidates through the process.
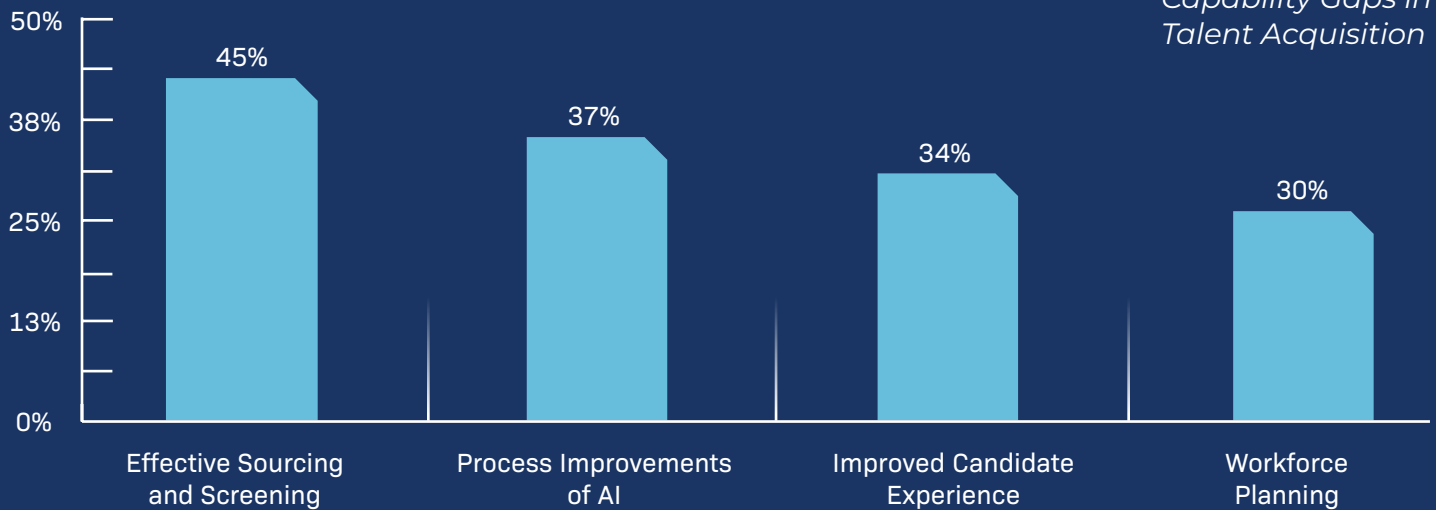
6 **Compliance and Ethics Are Different:**

Compliance is about minimizing risk, while ethics is about doing good. Companies needs to consider both when evaluating providers, but must understand the differences in AI matching that meets standards of compliance vs. AI matching that is upholding values and standards of ethics.
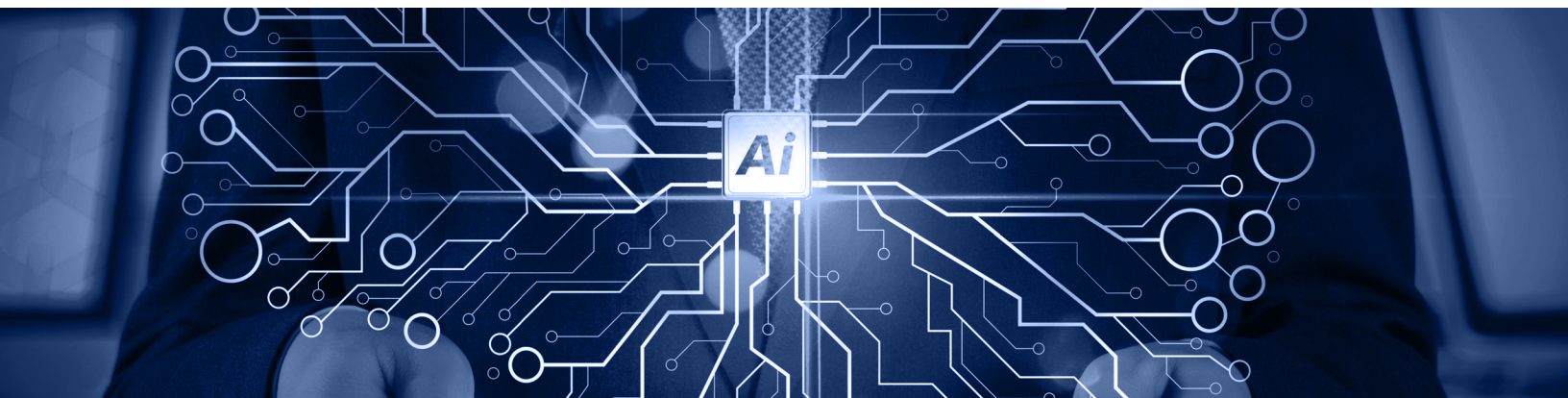
THE STATE OF **SOURCING**

Aptitude Research conducted a survey in July 2020, during the height of the pandemic, and found that the most critical capability gaps in TA involve sourcing and screening candidates (see Figure 1). Regardless of industry or hiring activity, companies struggle to identify and attract the right talent. Sourcing is often reactionary as companies are left scrambling to find and compete for talent in a short period of time.

Figure 1:
Capability Gaps in Talent Acquisition

Category	Percentage
Effective Sourcing and Screening	45%
Process Improvements of AI	37%
Improved Candidate Experience	34%
Workforce Planning	30%

Companies focused heavily on sourcing over the past year – either building out internal expertise, outsourcing sourcing activities, or leveraging world-class technology. One in three enterprise companies have an internal sourcing team responsible for finding candidates and for 60% of those companies, communication skills are the most important competency. Companies need support as remote recruitment, changing labor conditions, and competition for talent has made a challenging process even more complex. Yet, many sourcing strategies fail to deliver results. Sourcing faces several obstacles including:

75%

Dissatisfaction With Sourcing Strategies:
Seventy-five percent (75%) of companies are not happy with their sourcing strategy.

65%

Lack of ROI:
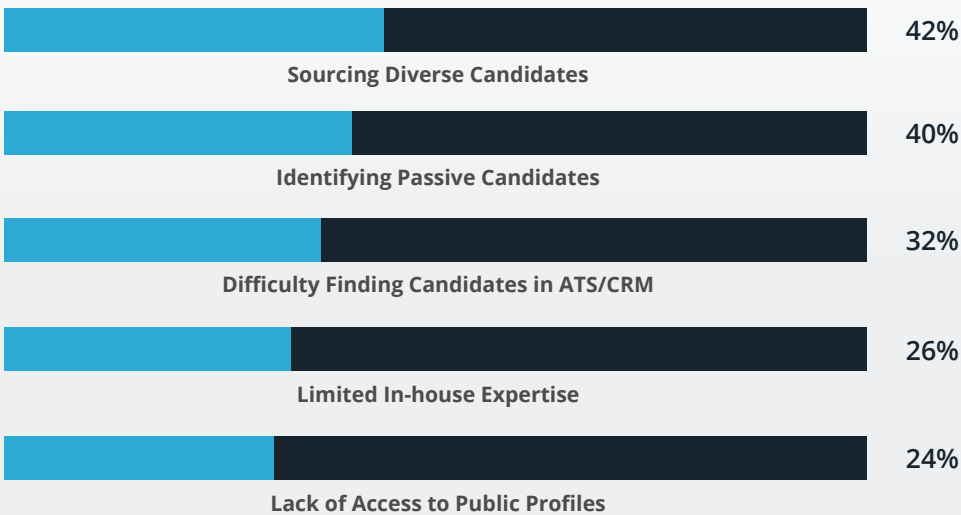Sixty-five percent (65%) of companies don't measure the ROI of their sourcing investments.

1-IN-3

Too Many Sourcing Solutions:
One in three companies use more than five sourcing tools.

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This reality has created a state of sourcing that is often filled with bias, and ineffective. Aptitude Research found the top sourcing challenges include: sourcing diverse candidates, identifying passive candidates, and difficulty finding candidates in the ATS.

Figure 2: *Top Sourcing Challenges*

Challenge	Percentage
Sourcing Diverse Candidates	42%
Identifying Passive Candidates	40%
Difficulty Finding Candidates in ATS/CRM	32%
Limited In-house Expertise	26%
Lack of Access to Public Profiles	24%

Despite these challenges,

1-IN-2

companies are increasing their investment in sourcing

Sourcing Diverse Candidates:

Companies rely on the same job boards, job aggregators, and sourcing channels to find candidates without thinking more broadly about diversity. Additionally, many companies are not tracking the sources of hire to know where they are finding more diverse candidates.

Identifying Passive Candidates:

Companies often wait for candidates to find their career site of job postings without proactively engaging passive talent and building pipelines for the future. Many companies are not tracking the sources of hire to know where they are finding more diverse candidates.

Difficulty Finding Candidates in the ATS/CRM:

Search is the main point of frustration with many ATS and CRM systems. Search is limited to keywords and many candidates have incomplete or outdated profiles. Aptitude Research found that recruiters spend over 10 hours a week, on average, looking for candidates in the ATS.

Despite these challenges, one in two companies are increasing their investment in sourcing. They are rethinking their strategies and technology to focus on a more effective process. One area where companies are focusing their investment is on AI matching. With efficiency and DEI driving many of the technology decisions today, companies are looking closely at solutions that can lift the administrative burden on recruiters and help to reduce bias.

> **Companies that leverage AI matching are two times more likely to improve diverse sources, three times more likely to improve time to fill, and three times more likely to improve quality of hire.**

EFFICIENCY:

AI matching connects candidates to jobs so that recruiters do not need to go through hundreds or even thousands of resumes for each job. These solutions use experience, skills, and data to match and rank candidates – saving time for both recruiters and managers.

DEI:

With ethical AI, companies can reduce human bias in the decision-making process and level the playing field so every candidate has a fair opportunity.

QUALITY OF HIRE:

AI matching can help companies better identify the right candidates using artificial intelligence that uses pre-established criteria and qualifications.

The remaining pages of this report will look closely at AI matching and its impact on talent acquisition today.

AI MATCHING: A CLOSER LOOK

Matching is not a new phenomenon in talent acquisition. Companies have tested out different matching solutions over the past two decades to help improve efficiency and save recruiters' time. In the past, matching focused on keywords and failed to use semantic or contextual search. Candidates were matched only on the words found in their resume or in the job description. Matching was not based on continual learning and improvement. This new wave of AI matching is significantly different with more advanced technology and a more sophisticated buyer. It aims to look at a more complete picture of the candidate – putting context and meaning behind the data so that recruiters and hiring managers can make more accurate and informed decisions.

What Is It?

AI matching connects candidates to jobs and jobs to candidates using artificial intelligence and data-driven insights instead of basic keywords. The goal of AI matching is to recognize candidates as humans – by gathering data to provide a more complete profile that includes context, inference, and insights with continual learning. Companies may refer to it as talent intelligence, matching, or talent marketplace but regardless, the end goal is the same. AI matching typically includes four major components:
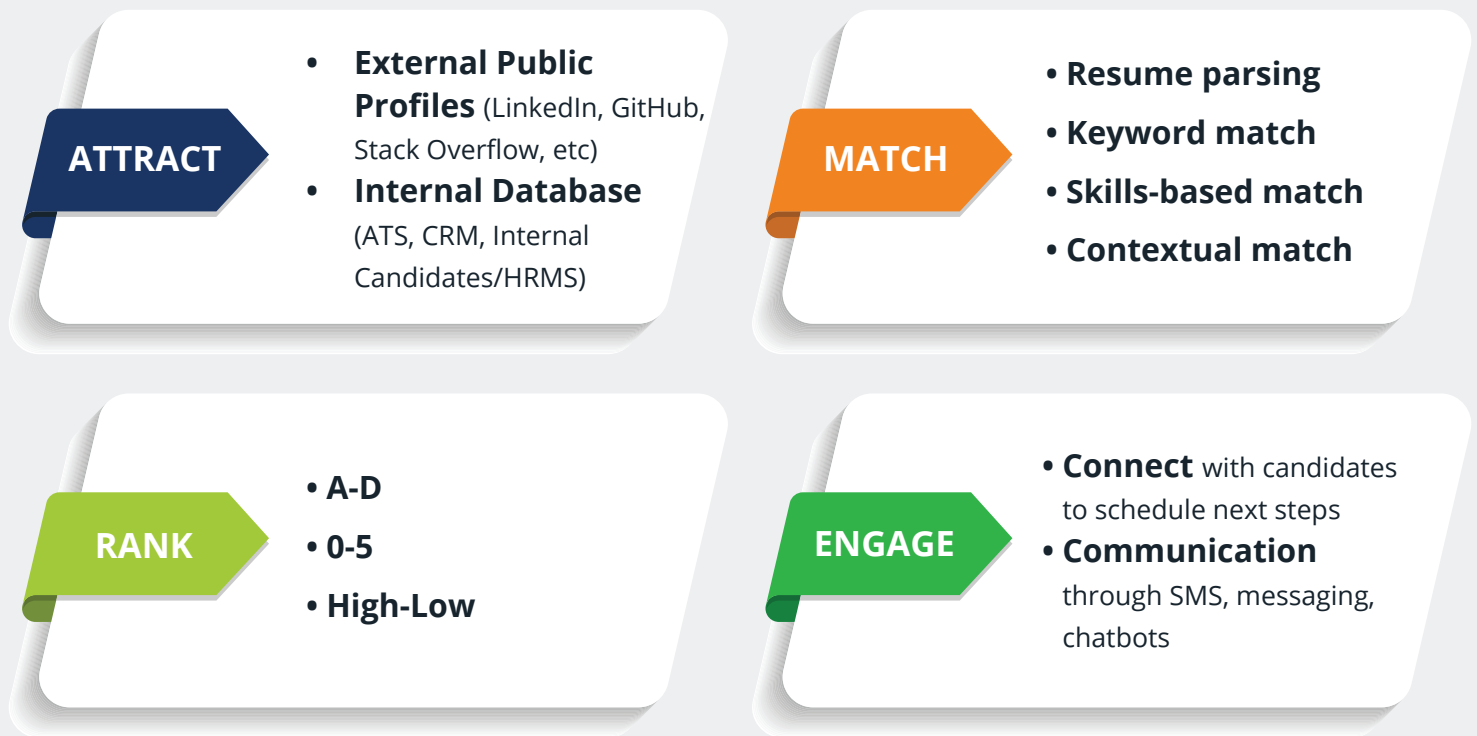
Attract: Capabilities to find candidates in a company's internal systems (ATS, HRIS, CRM) or public profiles (LinkedIn, social media, GitHub, etc).

Match: Matching capabilities to connect candidates to the right jobs using context, skills, data provided by individuals, and criteria that can be set by the employer. Matching criteria should be made transparent to the employer.

Rank: Scoring and ranking capabilities to help recruiters connect with the right candidates. Ranking can be on a scale of zero to five, A-D, or high-low models.

Engage: Capabilities to engage and communicate with candidates that are matched including SMS, messaging, and conversational AI.

Figure 3: *Components of AI Matching*

ATTRACT
- **External Public Profiles** (LinkedIn, GitHub, Stack Overflow, etc)
- **Internal Database** (ATS, CRM, Internal Candidates/HRMS)

MATCH
- **Resume parsing**
- **Keyword match**
- **Skills-based match**
- **Contextual match**

RANK
- **A-D**
- **0-5**
- **High-Low**

ENGAGE
- **Connect** with candidates to schedule next steps
- **Communication** through SMS, messaging, chatbots

What It Matches?

AI matching leverages data that candidates provide on their resume or data that is inferred from a resume or profile to make a recommendation. AI matching does not make the decision, but rather informs the recruiting team of the best candidates to consider. AI matching pulls data from two different sources: internal data from existing systems and external data from public profiles.

INTERNAL DATA:

AI matching is most effective with active talent and the qualifications and insights that candidates provide. Matching and leads are generated from existing systems including ATS, CRM, HRIS, or talent management systems. Candidates have already engaged with the employer and provided consent. Referrals and alumni are also included in internal data.

Data sources may include:

- ✓ **Resume**
- ✓ **Referrals**
- ✓ **Candidate profiles**
- ✓ **Employee profiles**

EXTERNAL DATA:

Matching and leads are generated from public profiles. Some AI matching providers are scraping the web for candidates (violating the ethics of AI and candidate consent), while others are using profiles on specific sites such as LinkedIn, GitHub, and StackOverflow.
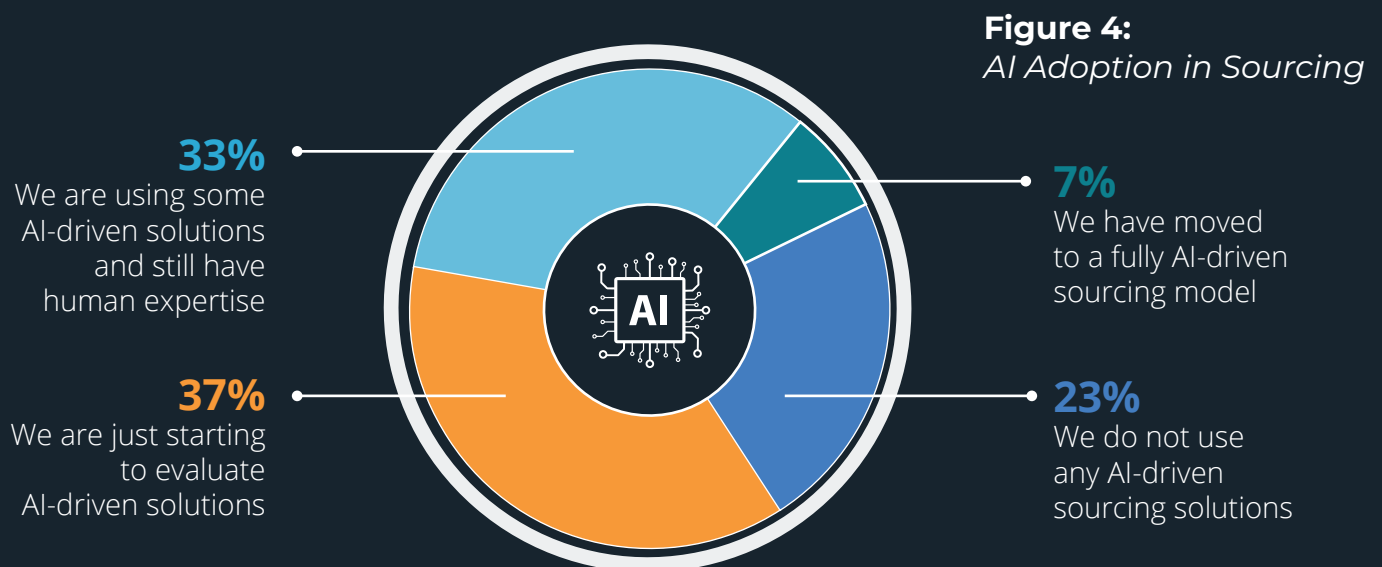
Data sources may include:

- ✓ **LinkedIn**
- ✓ **GitHub**
- ✓ **Social media**
- ✓ **StackOverflow**
- ✓ **Expert papers**
- ✓ **Public profiles**

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The conversation of internal and external data is connected to a broader discussion around sourcing active and passive talent. For companies that want to source passive talent, they also must consider how their job descriptions and advertising efforts are helping to attract passive talent and ensuring candidate consent.

What Role Do Humans Play?

The conversation of internal and external data is connected to a broader discussion around sourcing active and passive talent. For companies that want to source passive talent, they also must consider how their job descriptions and advertising efforts are helping to attract passive talent and ensuring candidate consent.

Figure 4:
AI Adoption in Sourcing

33%
We are using some AI-driven solutions and still have human expertise

7%
We have moved to a fully AI-driven sourcing model

37%
We are just starting to evaluate AI-driven solutions

23%
We do not use any AI-driven sourcing solutions

AI

Every organization is at a different stage of maturity with their use of AI matching to support sourcing and talent acquisition efforts. Only 7% of companies have moved to a fully AI-driven sourcing model and 33% are using it in some way in combination with human expertise. For companies hesitant about AI matching or sourcing automation, they have different models to consider and human expertise plays a critical role in sourcing and decision-making. Even many of the AI-driven sourcing providers offer some combination of technology and human expertise.

What Capabilities Are Important?

Although companies understand the value of AI matching, they do not always know what to evaluate when finding a technology partner. Aptitude Research found that the top drivers for investing in AI matching include diversity, equity, and inclusion; candidate scoring; resume parsing; sourcing automation; and adverse impact testing (see Figure 5).

DEI: Capabilities to help with job description writing, masking the screening process, and automating the ranking of candidates, thus interrupting bias early in the process.
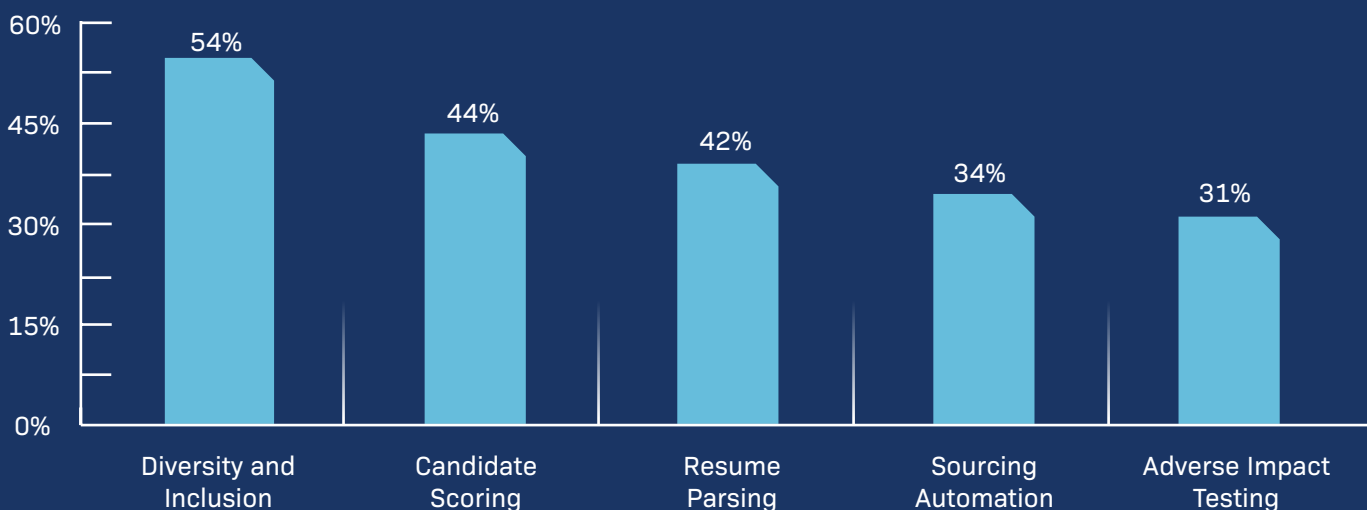
Candidate Scoring: Help companies rank and sort candidates to make it easier for recruiters and hiring teams to manage applicant workflow and identify quality hires.

Resume Parsing: Capabilities to parse the data and skills included on the resume.

Sourcing Automation: Find candidates and quality leads from existing systems or external sites.

Adverse Impact Testing: Automating adverse impact, the negative effect an unfair and biased selection procedure has on a protected class.

Figure 5: *AI Matching Capabilities*

Capability	Percentage
Diversity and Inclusion	54%
Candidate Scoring	44%
Resume Parsing	42%
Sourcing Automation	34%
Adverse Impact Testing	31%

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These capabilities are critical when understanding the importance of ethical AI and the providers companies should consider. Additionally, companies should look at providers that take a candidate-first approach to matching, where solutions can offer suggestions to candidates and also remember and recognize candidates.

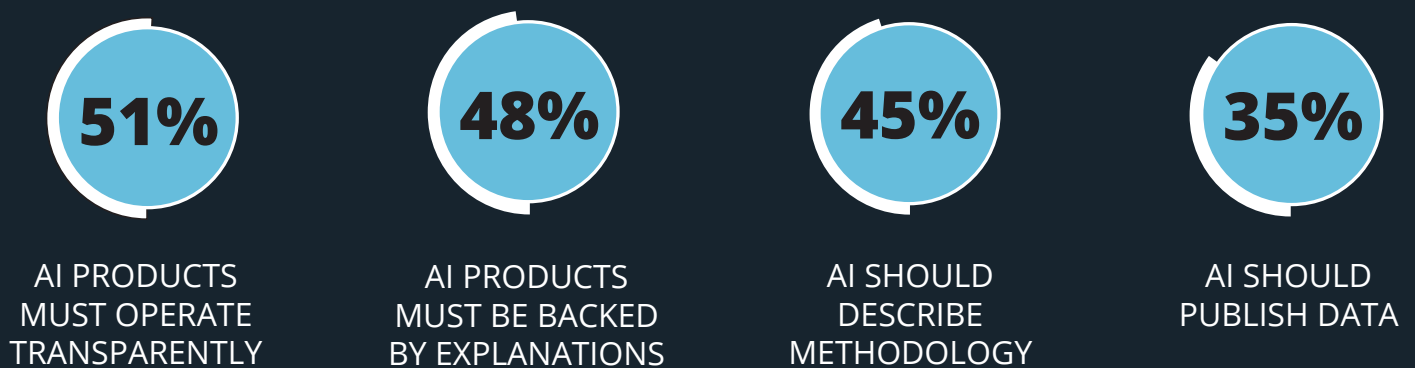## Where Does Internal Mobility Fit In?

Internal mobility has been a key focus for companies looking to better develop and engage talent. According to Aptitude Research, one in three companies are planning to invest in internal mobility this year. Companies recognize that they can provide a fairer internal hiring process and make smarter hiring decisions by upskilling and reskilling their workforce. Companies can also identify skills gaps across the organization to plan and prepare for the future. As companies look closely at their strategies for 2022 and beyond, skills-based hiring and internal mobility is a priority. AI matching can help companies support internal mobility efforts by giving companies a broader look at their candidate pool that includes internal talent. Only 1 in 3 employees actively update their employee profile. AI matching can infer skills and provide opportunities to internal candidates. Internal candidates can also learn about what skills they need to be considered for future roles.

ETHICAL AI:
ASKING THE RIGHT QUESTIONS

AI can help companies match talent to jobs, but it must be used in an ethical way. Ethical AI is the most critical consideration of AI matching, as well as the biggest differentiator between providers. Not every provider is committed to ethical AI or providing transparency to companies on the data they are using, the algorithms they develop, or the methodologies for matching and ranking candidates.

The topic of ethics in AI raises questions about humanity in the talent acquisition process. Companies must consider ethical AI as they evaluate providers and understand if products operate transparently, are backed by explanations, describe their methodology, and frequently publish their data (see Figure 6). Addressing ethics in AI builds confidence with employers and candidates who want to understand how their data is being used.

Figure 6: *Considerations for Ethical AI*

51%
AI PRODUCTS MUST OPERATE TRANSPARENTLY

48%
AI PRODUCTS MUST BE BACKED BY EXPLANATIONS

45%
AI SHOULD DESCRIBE METHODOLOGY

35%
AI SHOULD PUBLISH DATA

The responsibility of ethical AI is not always on the provider. Companies have an obligation to ensure the ethical use of these solutions. Aptitude Research found that companies are taking more responsibility for their use of AI by seeking outside expertise, legal counsel, and ethics committees.

Figure 7: *Companies Ensuring Ethical Use of AI*

45%
We Leverage Third-Party Resources And Institutions To Ensure Ethics in the Hiring Process

38%
We Have Our Internal Legal Team Review AI Solutions

32%
We Ensure Providers Have an Ethics Committee

24%
We Look at Adverse Impact Testing

Unfortunately, not every provider today upholds ethical AI – resulting in bias in the hiring process and data and decision-making that cannot be trusted. This highlights two major flaws with AI today – the lack of transparency and data that is not accurate or lacks integrity.

Ensure Transparency: Data transparency is the ability to easily access and work with data no matter where it is located, and that the data reported is accurate. Transparency of data becomes even more critical when evaluating AI solutions and capabilities. Aptitude Research found that when data is transparent, it increases the trust in talent acquisition leaders, hiring managers, and senior leaders. Eighty-four percent (84%) of talent acquisition leaders and 78% of senior leaders stated that they trust the data when transparency is ensured.

Start with Quality Data: Companies need to start with quality data. Without a clear vision or strategy for data management, companies do not clean their data or check for accuracy often enough. Only one in two companies is measuring data accuracy and data quality once a year (or longer). Many of the recruitment activities and systems are dynamic and change constantly. Companies should build a practice for measuring quality more frequently and define the metrics for quality.

Only
1-IN-2
companies is measuring data accuracy and data quality once a year (or longer)

As companies consider AI matching and begin to look at their technology investments, they must start with a basic understanding of the role of ethics.

What Are the Technology Options?

Unfortunately, not all AI matching providers are the same. Companies have several options when considering AI matching, including ATS providers, sourcing providers, and stand-alone providers (talent intelligence providers). They key drivers and value from these providers differs greatly. ATS providers may offer efficient and low-cost options, while AI matching and sourcing providers will address DEI, efficiency, and quality. Below are some key drivers for investing in these providers.

ATS:	AI MATCHING:	SOURCING:
Data	Efficiency	Efficiency
Price	Ethical AI	Search
Efficiency	DEI	DEI
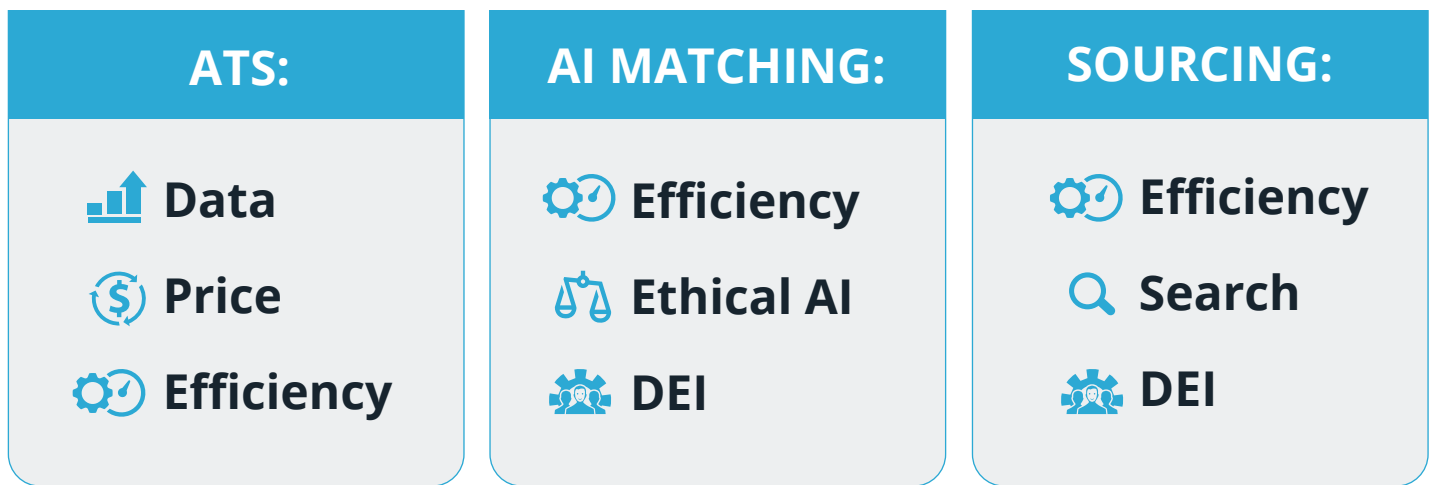
Companies and buyers that are committed to ethical AI are often looking at stand-alone providers, while companies focused on efficiency AI tend to look at their ATS providers or sourcing providers. Different providers have different motivations for including AI matching in their solutions. ATS providers do not typically charge separately for these capabilities, but in return, are not questioned and held accountable on their AI methodologies. Buyers are not looking for transparency, they are looking for a simple tool.

Figure 8: *Ethical AI vs. Efficiency AI*

Ethical AI	Efficiency AI
Data Transparency	Recruiter Productivity
Candidate Consent	Candidate Scoring
Published Methodologies	ATS Workflow Integration
Reduced Bias	Save Time

Public Profiles and Candidate Consent

One of the biggest debates in AI matching that relates to ethical AI is the discussion around internal vs. external data sources. Should AI matching solutions be able to access public profiles externally to source and match candidates, or should they be limited to data within their existing systems? Many of the sourcing providers are looking at public profiles to find candidates and then match them against a set of criteria. While this may seem to solve the short-term need of identifying talent quickly, it brings up questions of candidate consent and ethics.

Although some of this information is publicly available, candidates have not given consent for companies to use it to recruit or even promote them to different roles within the organization. Scraping the web for candidates – which is a common practice for some sourcing tools – does not obtain candidate consent and is not ethical. GDPR compliance makes consent even more critical. In line with GDPR, companies need to confirm if they have the right to export such profiles. Companies must have a legitimate interest to export such data (i.e., a job opportunity) and get the individual's consent.

Candidate-First vs. Employer-First

Most of the AI matching solutions available match candidates to jobs to help companies find talent more efficiently and effectively. The other option for matching is connecting jobs to candidates, or candidate-first matching. Companies in high-volume industries are interested in leveraging capabilities to match jobs to candidates. Some examples include:

- Show candidates applying to a job that there are other stores or locations nearby that have similar job roles
- Show candidates other, similar roles that may be a good fit
- Connect candidates to other employees that have similar roles and may be a good resource

Security and Compliance

Security and compliance is a critical consideration when evaluating AI matching providers. As IT becomes more involved in technology decision making and companies invest in more solutions to support talent acquisition, security is an important concern.

Below are some areas that companies should consider when evaluating providers and ensuring information security.

✓	Comply with DOE, federal, state, and local regulations
✓	Data is stored on a segregated database with restricted access
✓	Ability to work with third-party companies to ensure security and compliance
✓	Data logging of fair decision-making
✓	Ability to include a way to monitor and track virus attacks, denial of service, etc
✓	Offsite back-up of all customer data
✓	Documented inputs and outputs of data
✓	GDPR compliance

European regulations establishing a framework for AI have been drafted. These regulations will impact how hiring is conducted and how AI is used to source and select candidates. It's implications on AI matching will include how companies source, screen, interview, and hire talent.

Transparency

Every candidate deserves a fair and equal employment opportunity. And while some companies believe that technology and AI can create bias, the reality is that AI and the right technology can help to reduce bias more effectively than most humans. One reason is that AI can learn and change behaviors. Another reason is that AI is based on a scientific methodology for collecting and reporting on data. Technology can create a more inclusive candidate experience when companies consider the following:

Continually Test for Bias:
To reduce bias, AI solutions must have a hypothesis in place. They must continually test that hypothesis as new data is collected.

Interrupt Bias Early:
Certain attributes in a resume can introduce bias early on in the talent acquisition process. Companies need to remove those attributes and interrupt bias early in the process.

Use Objective Data:
Companies tend to decide on candidates based on their resume or attributes they recognize. Without objective data, not every candidate is going to get a fair opportunity.

Explainable Results:
Companies and providers must define what explainable results mean to their solutions. An explainable result should be a recommendation in terms of the publicly advertised job-related hiring criteria (i.e. the posted qualifications listed in the job description). Inferring qualification from tone of voice, writing style, publicly available social media content not provided by the candidate, or any other new data you are inserting into the recommendation can be problematic.

Many providers use "black box algorithms" that are not transparent or shared with candidates. AI solutions should be fully transparent with candidates on how their information is being used and how decisions are being made. Transparency should include why candidates are shortlisted and ranked during the matching phase. AI also enables companies to share specific feedback with candidates through the process. And, the reality is that technology has the potential to be more transparent than human behavior and the bias that impacts decision-making that many hiring managers will not openly share.

Questions To Consider for Ethical AI

When evaluating providers, companies should consider asking the following questions around ethical AI:

- Are you working with third-party institutions around ethical AI or academic research teams around regulations?
- Are your algorithms explainable?
- Do you automate adverse impact testing?
- Do you provide feedback and transparency to candidates?
- Do you obtain candidate consent?
- Do you have an ethics committee?

KEY
RECOMMENDATIONS

AI matching offers tremendous value for companies looking to improve overall efficiencies in the hiring process and better attract and identify talent. It can serve as an extension of the recruiting team and provide support in making better talent decisions. As companies increase their investment in these solutions, they must consider the providers there are evaluating and the role of ethics in these solutions. Below are a few key recommendations for companies to consider as they evaluate providers.

- **Identify your Options:**
  Every provider in talent acquisition is looking at the AI matching and talent intelligence space. It is important for companies to understand what options they have and what providers are committed to this area.

- **Ask the Tough Questions:**
  As companies evaluate different providers, they must ask questions beyond capabilities and price. They must think about evaluating providers through an ethical AI lens and question transparency and commitment to ethics. Ethical AI is the responsibility of both providers and organizations.

- **Talk to Other Companies:**
  AI matching and talent intelligence is a growing industry. Before making an investment, companies should reach out to other companies to ask about their experience with providers.

- **Consider the Candidate Experience:**
  Matching can provide benefits to employers but companies must also consider the impact on both internal and external talent.

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