Opening the Black Box
Uncovering the Truth About AI for Talent Acquisition
Introduction

Companies are collecting an ever increasing amount of data as they digitize more and more processes and strive to better understand their customers, employees and candidates. In a drive to make sense of that data and put it to work, the use of Artificial Intelligence (AI) has become widespread. It’s a buzzword in all industries right now, and in almost every area of business, including recruitment.

The space is full of terms like automation, algorithms, machine learning, deep learning, neural networks...the list goes on. Vendors look to position themselves as innovative and advanced and are keen to tell you exactly what AI means to them and (more importantly) what it should mean to you.

With all this noise, it’s easy to become caught in a haze of AI which makes understanding exactly how it can help you and your teams a challenge.

And key to this is data. The results of AI can only ever be as good as the data it’s working from. It’s imperative that all your data is complete, accurate and up-to-date, and can be effectively collected, standardized and structured.

In this white paper, we will demystify AI for talent acquisition teams. We’ll equip you with some of the key things you need to think about before you get started (including more on data). We’ll give some use cases of how it can help solve day-to-day challenges, and outline our own approach to AI.
What is AI?

A brief history

The term "artificial intelligence" was first coined at a conference at Dartmouth College in New Hampshire in 1956. While many of its attendees were highly optimistic about the future of AI, the concept had something of a rocky start. The 1960s saw the first chatbot (ELIZA) which simulated the responses of a psychotherapist in a patient consultation, and the first autonomous robot (Shakey) was created in 1968.

However, researchers always concluded that the real world was far more complicated than the specific problems being addressed, and research funding was withdrawn. The 1980s saw the first expert systems starting to combine expert knowledge of individual disciplines, but it wasn't until the 1990s that research really started to pick up. In 1997, IBM's Deep Blue became the first computer to beat a chess champion, defeating Russian Grand Master, Garry Kasparov, and bringing the concept of AI to the public's attention.

Since then, thanks to the exponential growth of computing power and storage capacity, improved methodologies like Long Short-Term Memory, and the huge volume of data from the internet, social media and other sources, AI has seen a boom. Developments are proceeding at a rapid pace, and now you’re unlikely to visit a software vendor’s website that doesn’t list AI somewhere in their capabilities.

Breaking down AI

Since the growth of AI, a number of new terms have emerged, some of which we listed in the introduction. Broadly speaking, however, we can break AI down into three core terms:

- **Artificial Intelligence (AI)**
  Any technique that allows machines to mimic human behaviour. For example, chatbots or matching candidates to jobs, and rule-based automation for manual, repetitive tasks.

- **Machine Learning (ML)**
  This is a subset of AI. It is the ability for an algorithm to learn how to perform a task from structured data, and then do it better over time. For example, spam filters will learn what you mark as spam and apply that to future incoming emails. Or think about the Netflix
experience where the platform learns the types of programs and films you watch, and recommends similar titles.

- **Deep Learning (DL)**
  This is a subset of ML. It is the ability for a series of algorithms to figure out what the right task should be from large amounts of unstructured data, without human intervention. Examples here include self-driving cars or facial recognition.

When reading about AI, you’d be forgiven for thinking that these terms are interchangeable. But as you can see, each term uncovers a deeper level of complexity and is an evolution of the term that came before. Understanding the type of AI used in different areas of a solution is important. It helps you get a better understanding of how the AI works so you can have more trust in its results. But it also means understanding which flavor of AI is best used for what you’re trying to achieve, so you can address challenges quickly and focus efforts in the right areas.
Before You Get Started

Before we get into some of the use cases for AI, we need to address a few things you need to think about when selecting AI-powered tools. AI can give some tangible benefits to your teams, but you need to make sure the proper foundations are in place to get the best results.

1. **What are you trying to accomplish?**
   Just as with every piece of technology, AI needs to serve a purpose, and solve tangible problems. And not all problems are best solved with AI, ML or DL. Stick to your goals and make sure the process and technology chosen delivers the highest value outcome with the least effort. Don’t get distracted by bells and whistles.

2. **How robust is your data?**
   AI is only as good as the data it’s working from. How do you make sure your data is clean, structured and free from duplication?

3. **How up-to-date is your data?**
   How frequently is data refreshed in your systems? Again, for AI to work effectively it needs to be working on up-to-date information. If system refreshes are daily, for example, this will impact the effectiveness of AI. Ask vendors for details of how quickly data is refreshed in their systems. What exactly do they mean when they say “real-time”?

4. **How automated are your systems?**
   Automation is a big part of data integrity, so make sure you have the flexibility to automate key processes easily so you avoid manual data entry or manipulation. Quiz vendors on the automation capabilities of their solutions, and ask them to show you how you can set up workflows in their systems.

5. **How integrated is your tech stack?**
   All integrations are not created equally. Make sure vendors have open APIs so two-way integrations can be built quickly and securely, and won’t break. What does your vendor’s ecosystem look like? How deep are their integrations? Are they able to create a connected AI experience? How do they ensure data is cleaned, structured and in the best format possible for AI?

6. **What data sources does the vendor use?**
   Is it all internal, or purchased from external sources? How trustworthy are these sources, and what is the quality?
7. **Do you have the right tools for the job?**
   What is each part of your tech stack there for and how effective is it? Are you duplicating features across multiple solutions?

8. **Do your vendors use the right tools for the job?**
   Ask them for details of which 3rd party providers they use. For example, if resume parsing doesn't capture the right information (or worse if it regularly fails completely), then you're missing out on data that would improve AI results.

9. **What does your chosen vendor mean by AI?**
   Ask them to explain where they're using AI, ML or DL and in what capacity. What data points are they using and what results are they expecting to see? How explainable or transparent are their models? How do they mitigate bias?

10. **How strict are your data protection policies?**
    You need to ensure you're compliant with regional data protection legislation wherever you operate. And that doesn't just mean around data collection and retention, but also where data is generated and how systems are accessed.
As AI has evolved, the role of data has become even more important. So important that an Economist headline back in 2017 read: "The world's most valuable resource is no longer oil, but data." Businesses have moved from simple automation of key processes. We're now in the realms of recommendations or predictions, and for these to be effective for your business you need lots of robust, up-to-date data. If data is in short supply, unstructured, duplicated and out-of-date (also known as 'all over the place') then AI will deliver poor results, which could be more harmful than helpful.

One of the widest cited AI failures comes from back in 2016 when Microsoft unveiled its AI chatbot, Tay, on Twitter. In less than 24 hours, after being bombarded with huge amounts of unstructured data, Tay went from being an innocent chatbot to a misogynistic, racist and homophobic embarrassment.

In talent acquisition, the Candidate Relationship Management (CRM) system is the primary repository for candidate information. The first CRM systems for talent acquisition emerged just over a decade ago as talent teams realized the importance of managing prospective candidates outside of their Applicant Tracking System (ATS).

As technology in this space evolved, focus shifted to delivering a better candidate experience with recruitment marketing tools making it easier to create talent marketing campaigns. But while APIs made it possible to share data between core systems and point solutions, integrations were often not seamless. This resulted in disconnected data, which impacted the efficiency of the recruiting team and the candidate experience.

Today, you simply can't get the level of intelligence and efficiencies needed with disconnected, unstructured data. You need rich, two-way integrations to unify, clean and structure all your data. You need a single source of truth for talent. Not only does this ensure the most effective application of AI, but it also allows the creation of highly functional custom solutions without compromising data integrity or completeness.

From a number of ‘systems of record’ we now see the emergence of a ‘system of intelligence.’ With this, we can understand and examine the relationships between data points, delivering deeper and more actionable insight for the business.
So, How Does AI Help?

Now that we’ve covered a bit of background and some of the things you need to think about before delving into the world of AI for talent acquisition, how can it be of benefit to you and your business? Let’s take a look at a few use cases, based on some common challenges we see from different people in the talent acquisition team.

Improving Recruiter Effectiveness

Reduced administration

For many talent acquisition teams, valuable time is taken up by manual administration. Keeping systems updated, creating or updating profiles and reviewing resumes. Recruiters would rather they spend their time on more valuable (and let’s face it more interesting) tasks like outreach and direct candidate engagement. Something senior management would likely prefer as well.

In its basic form, AI allows the automation of core processes, freeing up time so recruiters can focus on the more valuable aspects of their work. It helps scale your sourcing by automating repetitive steps in the sourcing process, saving users around 15% of their time each week. This could include auto-filling talent pools and segmenting candidates based on their profile information, or automating communications for talent community initiatives.

Global data protection compliance

Aside from taking up valuable time, data protection compliance can also leave recruiters at risk of inadvertent non-compliance if they contact the wrong candidates. Automation can not only collect consent, but also anonymize and archive contacts. This safeguards recruiters and the business from getting in touch with the wrong people.

Reduced time-to-hire

Even after gaining time savings through automation of core processes, sourcing candidates from the CRM for particular talent pools takes time. Time-to-hire can be dramatically reduced by using machine learning. The system can quickly search and score candidates across the CRM, based on specific characteristics of a few ‘ideal’ candidates placed in the pool by the recruiter. The system then learns, refines and improves results based on which candidates the user adds to the pool, or dismisses. Bias is a key consideration here, so you need to ensure the system does not use characteristics like gender or age when recommending.

Dynamic role prioritization

Recruiters are often working on multiple roles at the same time, but some roles will have a greater
business value than others. Prioritization of roles can sometimes feel like walking on shifting sands - always changing as more vacancies arise or external factors impact candidate availability. With deep learning, the system can measure the risk and value of each role and recommend areas of particular focus. This ensures the team focuses on the most valuable roles.

**Improving Talent Experience**

**Increased website conversions**
If someone has visited your career site, they're likely interested in the opportunities your organization might have for them. But if they leave the site without applying for a role, that could be an opportunity missed. It's common for organizations to deploy chatbots to convert visitors to potential candidates by encouraging dialog and collating basic information. This can help to prioritize the candidates recruiters should follow-up with. In its most basic form, chatbots follow preset rules to collect information and answer certain questions. Machine learning can also mean chatbots can learn from their interactions, to improve the questions asked and responses given.

**Personalized and individualized experiences**
Personalization is something people have come to expect in today's world. And it helps conversions too. Beamery customers using personalization see average open rates of 72% and click through rates of 18%. Potential candidates want to feel special, and generic responses or content won't cut it. They'll disengage and look elsewhere for their next move. Attracting them back to your brand will be even harder.

To offer a personalized experience for a large number of potential candidates, you're going to need some help. We've already talked about how automation helps recruiter effectiveness, but automating the population of talent pools also allows more targeted communications (which can also be automated) to increase engagement.

Machine learning also allows us to move beyond personalization and treat candidates as individuals. Sign visitors up to talent portals and the system can use information from their candidate profile to deliver recommendations. The system can then learn more about the candidate as they interact with and search for jobs and content, and provide individualized recommendations for job roles or content.

All of this allows you to deliver a better experience for candidates at scale, which means they're more engaged with your organization. It also helps you build a pipeline of candidates for future roles that would take longer to fill with less ideal candidates.

**Improved response rates**
Different candidates will respond better to different methods of communication. Some will find
SMS intrusive, whereas others will prefer it as an alternative to emails that get lost among a sea of other messages. Understanding exactly what the candidate prefers would mean checking each candidate's message history and individual response rates. With machine learning, the system can do the legwork for you and recommend the best channel to use at the best time. It can even recommend content and templates to use. This ensures candidates receive the most relevant information in the most effective way. It also ensures the highest possible response rates from recruiter outreach.

Improving Talent Intelligence

🎉 Improved data quality

Fundamental to the effectiveness of your talent acquisition function is the quality of the data your team works with. They need a rich, up-to-date and accurate data set to be able to identify the best candidates for roles. But finding and collecting that data, and keeping it up-to-date is time consuming.

With machine learning, the system can automatically enrich profiles with information from public sources like social media. Automated re-enrichment on a regular basis also then makes sure your data is always as complete as possible. This ensures your CRM has the most information available to assist both your recruiters, and also your AI.

Another critical point on data quality is deduplication. Duplicate records impact the efficiency of your team and the experience of your candidates, so it's vital that the systems you use handle deduplication effectively.

For example, if you bulk add candidates to your CRM, you don’t want your recruiters to then sift through those to find the duplicates, combine the information and delete the relevant record. Using AI the system can automatically check the information that’s already in the database as the candidates are added. As it reviews key data points and their relationship to each other, it can automatically skip update candidates it is sure are duplicates and flag those it's unsure of for review. This ensures data integrity which is vital for AI to perform effectively, but also cuts hours of unnecessary administration.

🎉 Predictive planning

By looking at market intelligence and internal systems of record (e.g. CRM for candidates, ATS for applicants and HRIS for employees) deep learning can uncover supply and demand of skills. Predictive workforce planning provides actionable insight that you can plug into your recruitment strategy, ensuring you have the talent you need as your business evolves.
AI the Beamery Way

Truly understanding AI is almost impossible if everything's hidden in a 'Black Box.' It needs unpacking and explaining. You need to be able to understand what is happening, and what the expected results will be.

This is an important issue, because AI has the capacity to make the lives of your talent acquisition team much, much easier. But if users don’t understand what’s going on, they won’t trust it or believe in it, which makes adoption difficult.

This desire for more transparency in AI has driven a movement to Explainable Artificial Intelligence (or XAI). As Ron Schmelzer put it for Forbes:

> As humans, we must be able to fully understand how decisions are being made so that we can trust the decisions of AI systems.

There's obviously a balance between how complex something is and how explainable. Simple, rule based techniques can be easily explained, but are not always effective in solving complex problems. Deep learning models with layers of neural networks may not be as explainable, but can be much more effective in achieving certain goals.

With that said, the philosophy of XAI has driven our approach to AI here at Beamery. We want to be transparent and honest, and do our best to explain what’s happening where and when.

And this includes not talking (or developing) AI for AI's sake. The AI we build into our solutions will always focus on solving the true challenges talent acquisition teams face. We'll use AI to augment and assist, not take over. For us, AI should free up time, guide recruiters to make better decisions, and deliver a first-class talent experience.

As vendors, we also have a responsibility to think through the ethical side of AI, and protect our customers from bias. After all, no-one wants a chatbot like Microsoft’s Tay assisting in their recruiting efforts! This means validating our data sets to make sure they are representative of real world scenarios. We then train, test, regularly audit and re-train our models with validated control data sets to remove any potential of explicit or inferred biases.

To find out more about the Beamery platform and how it can help your talent acquisition teams, please get in touch using the details below.
About Beamery

Beamery’s Talent Operating System allows enterprises to attract, engage, and retain top talent, and manage the entire talent journey through one unified platform. Beamery’s mission is to help the world’s best companies acquire their greatest assets: their people. Founded in 2014, Beamery is trusted by the world’s most innovative global organizations to treat their candidates like customers. Beamery has offices in London, Austin, and San Francisco.

For more information, visit the Beamery website, follow @BeameryHQ on Twitter, or email us at info@beamery.com.