DEFINITIVE GUIDE TO AI IN RECRUITMENT

THE ULTIMATE GUIDE FOR A MODERN HR PROFESSIONAL
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80% OF EXECUTIVES BELIEVE AI CAN IMPROVE PRODUCTIVITY AND PERFORMANCE.

Undercover Recruiter
Internet is full of definitions for artificial intelligence, machine learning, deep learning and artificial general intelligence. To successfully use AI in recruitment, it is helpful that you know some basics. Here you will learn simple explanations for some of these terms.

**Basic Terminology**

**Artificial Intelligence or AI**
Artificial intelligence is a computer program or a machine that is capable of somewhat human-like behaviour.

**Machine Learning**
Machine learning means human-developed algorithms that can be taught with data.

**Deep Learning**
When a neural network learns the algorithms or abstractions it needs, directly from the data, by itself, it is called deep learning.

**Artificial General Intelligence**
A machine capable of understanding the world, as well as any human that can independently conclude what it should learn, is called artificial general intelligence, or AGI. This kind of machine does not yet exist.
DATA SOURCES

How can you take advantage of data when using AI in recruitment? HR data can be gathered from three main sources:

1. **APPLICANT TRACKING SYSTEM**

2. **HR SYSTEMS**

3. **ONLINE PLATFORMS**

*AI tools assist you to take advantage of the data!*

Recruitment processes and employment relationships generate lots of data. That data is usually stored in an applicant tracking system (ATS) and HR systems. Data can help you make decisions and improve the quality of recruitment. It can also reduce recruitment costs and improve the candidate experience as well as improve vacancy and recruiting forecasts. Sadly, many companies don’t often systematically enrich or effectively use the data.

Online platforms offer public data sets that are standardized. However, the company that is using the data, doesn’t own it. Good example of an online platform is ESCO, the European multilingual classification of Skills, Competences and Occupations. ESCO works as a dictionary, describing, identifying and classifying professional occupations and skills relevant for the EU labour market and education and training.
THE BENEFITS OF USING AI IN RECRUITMENT

Over the next decade, AI will heavily affect how we attract, hire and retain talent. But why should you use AI in recruitment in the first place? These are the top 5 reasons.

**IMPROVE THE QUALITY AND OBJECTIVITY OF RECRUITMENT**

**ATTRACT THE RIGHT CANDIDATES AND RECEIVE LESS IRRELEVANT APPLICATIONS**

**NO LONGER OVERLOOK CANDIDATES**

**SAVE TIME AND FILL POSITIONS FASTER**

**ENHANCE THE CANDIDATE EXPERIENCE AND EMPLOYER BRAND**
As a human being, the recruiter is always biased. What this means is, for example, recruiter A could hire a candidate that recruiter B would not even invite to a job interview. A lot of recruitment is done based on feelings, and the criteria are often quite arbitrary.

AI can bring an unbiased view to the recruitment process. For example, AI can help recognize what type of a candidate would fit the team and what skills the team lacks or suggest how good a fit a candidate is for a certain position.

45% of employers say they can’t find the skills they need.

And for large organizations it’s even higher:

67% of large organizations have talent shortages.

Manpower
Attracting the most suitable candidate is an important goal for any organization. While there are plenty of ways to attract candidates and new methods are often introduced, job ads still have their place.

But what happens if the job ad doesn’t give the right impression? You may receive many applications but not the right ones. You end up with more work and fewer quality candidates.

Artificial intelligence can help you by giving tips for writing the job ad, or even write the job ad for you. Also, chatbots and matching technology can be used for directing candidates to apply for relevant jobs and also do the pre-screening on your behalf.

AI chatbot can enable an opportunity to offer hidden positions to candidates that meet certain criteria. In other words, it empowers a company to hire candidates also for secret projects without revealing what kind of positions are open.

**Let’s look at an example**

Company A needs a cybersecurity professional, but it does not advertise such a position publicly. However, if a potential candidate were to chat with an AI chatbot and show their ability to succeed in a cybersecurity role, the bot can inform the company about the candidate. In the best case scenario, the candidate can agree to an interview with the company through the chatbot.
Without AI, recruiters are forced to search for candidates from a database with just certain keywords. Thus, there is a huge risk that a great candidate will be neglected. That candidate may have the right experience or skills for the position but has not used the “right” keywords in their CV, so the recruiter won’t find them—or won’t find them fast enough.

AI can help review candidates without relying on keywords. Instead, it can look at the candidates’ documents as a whole and see the expertise and skills behind the individual words being used. Thus, AI can assist in ensuring that no candidate is accidentally overlooked.

Did you know that tons of books teach candidates what type of keywords they should use and how they can hack their CVs? Why are these books so popular? Because candidates want to stand out from the crowd.

“JOB SEEKERS WANT TO SEE MORE VIRTUAL REALITY AND JOB MATCHING TECHNOLOGY IN THE JOB SEARCH.”

Career Arc
SAVE TIME AND FILL POSITIONS FASTER

Very common problem in recruitment is that the process lasts too long. The best candidates disappear when they get a job offer from another company that is able to move faster. Wouldn’t you want to make your recruitment processes more efficient and not frustrate both yourself and your candidates?

Based on a study of Ideal, HR managers say they lose in average of 14 hours a week because they need to manually complete tasks that could be automated. AI can truly save you time in different parts of the recruitment process, especially with writing text, analyzing candidates, and when communicating with them. With recommendations from AI, you can contact the most suitable candidates first and fill the open position faster.

Last but not least, by automating manual work in the recruitment process, you have more time to focus on what matters the most: the people.

13% OF HR MANAGERS SAY AI IS ALREADY A REGULAR PART OF HR.

Ideal
ENHANCE THE CANDIDATE EXPERIENCE AND EMPLOYER BRAND

I am sure you would love to communicate with your candidates and provide a superior experience to each of them. However, you have a limited amount of time, and sending messages manually just consumes way too much time.

Communication with candidates significantly improves candidate experience and in the end, enhances your employer brand. Based on the study by Career Arc, 69% of the job seekers believe the response time to candidates awaiting a recruiting decision can be improved the most.

With AI, you can communicate with job candidates even when you have thousands of applicants every year. AI chatbots can answer to candidates questions automatically. Natural Language Processing technology (NLP) can help give personalized feedback to each candidate and AI matching can recommend the most suitable positions for your candidates even before you talk with them.

69% OF THE JOB SEEKERS BELIEVE THE RESPONSE TIME CAN BE IMPROVED THE MOST.

CareerArc
HOW TO USE AI IN RECRUITMENT

CANDIDATE COMMUNICATION
Communicating with candidates via status updates, chat bots and feedback messages

SOURCING CANDIDATES
Sourcing tools for finding candidates automatically from internal talent communities

PREDICTIVE ANALYTICS & SIMULATIONS
Predicting what kind of a person would fit the team and recognizing when a new employee is needed

MATCHING CANDIDATES
Automatic recommendations of the most suitable candidates to enhance the diversity in recruitment

INTELLIGENT ANALYTICS
Metrics about candidate experience and candidate relevancy to develop the recruitment process

DOCUMENTING
Creating better targeted job ads to avoid irrelevant applications and save valuable time
10 FASCINATING AI-BASED RECRUITMENT TOOLS

The tools are found through recommendations and searching internet. We have not tested other tools on the list, except our own.
1. TALENTADORE HIRE

CANDIDATE COMMUNICATION, TALENT COMMUNITY & ADVANCED ANALYTICS

TalentAdore removes bottlenecks in recruitment one by one. This frees up time to focus on the moments that matter and create an exceptional candidate experience.

WITH TALENTADORE YOU CAN

- Thanks to AI and clever automation, TalentAdore Hire enables fully personalized candidate communication seamlessly and timely.
- Send AI-assisted 100% personalized feedback messages and keep your candidates up-to-date with customized status updates.
- Build a dynamic Talent Community. Store talents and nurture them with engaging messages. Link talents to open positions and gather referrals. As a result, you save recruitment costs and fill positions faster.
- Gather data of how candidate experience develops with time, and make data-driven decisions.

READ MORE ABOUT TALENTADORE
2. RECII

AUDIO ANALYSIS TO PREDICT CANDIDATE PERFORMANCE

Recii’s AI solutions listen to the natural conversation of recruiters and candidates and maintain personalisation and optimise the recruitment process.

WITH RECII YOU CAN

- Listen and guide candidates through the assessment process in a fluid and natural conversational way through chat on the phone or at your computer.
- Call, text, WhatsApp, or online chat via phone or computer with candidates to tell about job roles and do an initial screening interview.
- Verify and validate top candidates so you are improving the quality of the candidate pool faster and ensure they have the right credentials and are the right candidate for the job.
3. METAVIEW

AUDIO ANALYSIS TO RANK INTERVIEWER PROFICIENCY

Metaview uses conversation analytics to pull insights out of interviews. They enable your organization to interview more effectively and make better hiring decisions.

WITH METAVIEW YOU CAN

- Audio record the job interviews, conducted via video call or in person and automatically transcribe them.
- With data, understand how effective your interviewers are and what they need to do to develop their interviewing skills.
- By using the tool, eventually answer to questions such as, what are the most common questions asked by candidates and are we interviewing candidates of all backgrounds in a consistent manner.

READ MORE ABOUT METAVIEW
Augmented writing is fueled by massive quantities of data, contributed by companies across industries and around the world. Textio’s predictive engine uses this data to uncover meaningful patterns in language, guiding you to stronger communication and better business outcomes.

**WITH TEXTIO YOU CAN**

- Make augmented job posts – Attract active job seeker
- Write augmented recruiting mails – Engage passive candidates
- Form augmented hiring teams – Work as one enterprise

**READ MORE ABOUT TEXTIO**
5. ARYA

**SOURCING CANDIDATES AND ENGAGING WITH COMMUNICATION**

Arya uses machine learning to identify successful sourcing patterns and draws potential candidates out of millions of online profiles by applying this algorithm to your existing resume database and beyond.

**WITH ARYA YOU CAN**

- Collect lists of candidates from multiple sources.
- Implement strategic feedback. Arya gets smarter over time and learns through successes and failures.
- Use engagement channels where candidates are actively engaging including email, text, chatbot, and call communications.

READ MORE ABOUT ARYA
6. PAÑÑÃ

INTERVIEW PLATFORM FOR TECHNICAL HIRING

Paññã empowers HR by providing the right set of tools to shortlist the best in the stack of applicants. It provides artificially intelligent hiring, an ever growing repository of dynamic questions, expert evaluation, recorded interviewing, video conferencing and voice and face recognition.

WITH PAÑÑÃ YOU CAN

- Prepare and conduct intelligent interviews and get the interviews evaluated by experts.
- Get an in-depth report along with the candidate score and market median comparison.

READ MORE ABOUT PAÑÑÃ
7. ENTELO

PREDICTION OF THE LIKELIHOOD OF AN EMPLOYEE TO CHANGE A JOB AND INDICATION OF HOW GOOD FIT A CANDIDATE IS

Entelo Insights leverages artificial intelligence and machine learning technology to deliver candidate specific insights and outreach recommendations.

WITH ENTELO YOU CAN

- Get deep insights into prospective candidates by surfacing key data points not found on traditional resumes or social profiles.
- Discover candidates’ career highlights, likelihood of switching jobs, company fit, skill mastery, and estimated market value.
- Get real-time and actionable recommendations to optimize messaging and increase candidate engagement.
8. HIREVUE

FACIAL RECOGNITION TO RECOGNIZE THE EMOTIONS OF JOB CANDIDATES

By leveraging artificial intelligence within a video interview, coupled with data collected from gameplay, HireVue provides your hiring teams with key insights into a candidate’s work style, how they work with people, and general cognitive ability.

WITH HIREVUE YOU CAN

- Record a video interview in a single unified experience that can be completed in less than 30 minutes.
- Collect tens of thousands of data points in a single assessment and analyze those data points by machine learning algorithms.
- Get insight into candidates’ job related competencies and allows your hiring teams to predict future success.

READ MORE ABOUT HIREVUE
9. PARADOX

OLIVIA CHATBOT FOR CANDIDATE COMMUNICATION

Through the power of AI and NLP (natural language processing), Olivia can be the front end on all your candidate communications and can answer every question your candidates might have.

WITH OLIVIA YOU CAN

▶ Engage with your candidates through the web, mobile platforms, or social channels.
▶ Provide next steps for the candidate and direct "green light" candidates to recruiters.
▶ Handle all scheduling coordination easily.

READ MORE ABOUT OLIVIA
Skill Mapper was built for Talent Acquisition and Management teams facing the challenge of building workforce and succession plans without sufficient data on their employees’ skill sets in their current HCM systems.

WITH HIQ YOU CAN

- Identify your employees’ hidden and adjacent skill sets, and utilize them for career development.
- Find the best-fit job matches for employees seeking new opportunities at your company.
- Identify which employees have similar skill sets to your top talents.
WARNING EXAMPLES

AMAZON’S HIRING TOOL

Amazon’s hiring tool was a program that reviewed job applicants’ resumes with the aim of mechanizing the search for top talent. It used AI to give job candidates scores ranging from one to five stars.

What happened?

- The tool didn’t rate candidates for technical jobs in a gender-neutral way, but preferred male candidates.
- It was taught with real data that was biased and reflected the male dominance across the tech industry.
- The computer models were trained to score applicants with help of observing patterns in resumes submitted to the company over a 10-year period.
- The AI experiment failed but by learning from it, the company now uses a “much-watered down version” of the tool to help with some rudimentary tasks.
- Read more about Amazon’s tool on Reuters.
WARNING EXAMPLES

TAY.AI CHATBOT

Tay.ai was built by the Microsoft Technology and Research and Bing teams, in an effort to conduct research on conversational understanding. It was able to tell jokes and offer up a comment on a picture you send her. It was designed to personalize interactions with users and it ‘learned’ from those it interacted with.

What happened?

• Twitter users ‘taught’ Tay to be a racist
• She would often repeat back racist tweets with her own commentary.
• Microsoft took Tay down after only 16 hours of interacting with real people.
• Read more about Tay.ai on TechCrunch
AI incorporates massive opportunities for its users, but it is still in the early development phase. AI tools or projects will not always succeed, but that does not mean you should be scared to use them. The most important thing is to learn from the mistakes.

**SO, WHAT CAN BE LEARNED?**

- Using the company’s own data for a deep learning model is often not enough. For example, if a company discriminates against women in job search, a deep learning model will learn it as well.

- It is important for the user to set certain methods for the profound learning model. One good option is semi supervised learning, in which a person sanity checks what the model learns.

- It is vital to use standardized data (e.g. ESCO, O*NET).

- AI can help to streamline recruitment process in so many ways but we will NOT encourage you to reject candidates purely based on AI.
AI is here to stay and we want you to keep ahead of the game. After reading this guide you should know how AI can be used in recruitment, what kind of tools exist in the world and how you can benefit from AI.

1. **Collecting Data**
   HR data can be collected from recruitment processes, employment relationship and online platforms.

2. **Increasing Quality and Objectivity**
   AI can help increase the quality and objectivity of recruitment, save time, fill positions faster, and improve candidate experience.

3. **Sourcing and Matching**
   AI can be used for various purposes, such as sourcing, matching, written and verbal communications, document writing, analytics, and simulations.

4. **Innovative Tools**
   AI tools are getting more and more innovative; try them out bravely and experience the value in your everyday job.

5. **Check what Data AI tool uses**
   When purchasing an AI solution, check what data it uses, from which sources it gathers data and how it is taught. Do not accept ‘black box’ solutions in which the supplier does not explain how the AI works in practice. Require transparency.
After reading this guide, a great next step is to take the Elements of AI course by Reaktor and the University of Helsinki. It’s free, and over 650,000 other people have already started learning about the basics of AI through this course. Dive in!

35% of HR managers say full automation could lead to lower costs.

Thank you for reading!

We hope you enjoyed our guide.

Miira Leinonen (CMO) & Joni Latvala (CTO)
TalentAdore
ADDING THE HUMAN TOUCH TO RECRUITMENT PAYS OFF.

Create an exceptional Candidate Experience with TalentAdore Hire.

TalentAdore Ltd. is a global HR technology company on a mission to bring the human touch back to recruitment. Our AI-assisted recruitment software, TalentAdore Hire integrates an ATS, candidate engagement technologies, and advanced automation.

With TalentAdore Hire, you can manage your entire recruitment process from job postings to hiring decisions, build dynamic talent communities, and pre-onboard new hires before their first day. What’s best, it enables fully personalized candidate communication seamlessly and timely.

Thanks to the superior candidate experience, the candidates feel heard and understood. The majority (up to 70%) of the rejected job candidates would recommend the company to their social circles. Also, companies reduce time-to-hire by up to 50% and save up to 40% of their hiring cost.

Find out more and visit us TalentAdore.com

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