ROBOT REVOLUTION:
AUTOMATION AND ROBOTICS IN RECRUITMENT

RESOURCESOLUTIONS

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INTRODUCTION

We live in a world exploding with data, and a new, unprecedented level of technology. With an increased focus on cost and time efficiencies, we're seeing growth in Artificial Intelligence (AI), machine learning and robotic capabilities. These major advances are leading to burgeoning possibilities for automation and computer-aided simplification of processes – and in recruitment, we're starting to see some exciting first movers in this space enter the market.

The opportunity for HR and Recruitment leaders is to harness these new technologies that can have the potential to increase efficiency and reliability. Critically, these could allow staff to focus on work that is more beneficial to the organisation and more interesting for the employee.

There will always be fear and a certain amount of risk associated with the adoption of new technology. Look back through history and you'll see this again and again during each major phase of advancement, the industrial revolution being just one example. But at Resource Solutions, we believe the benefit could outweigh the risk, and embracing the use of AI could allow our people the time to focus on the strategic imperative of creating closer human relationships with our candidates and clients.

In this eBook, we will explore how robotics and automation are beginning to make a meaningful impact in the field of HR & Recruitment:

- We'll help define the technology
- Explore a range of robotic capabilities
- Report on parts of the recruitment process that lend themselves to automation
- Call attention to examples of existing robot and human interaction
- Highlight early AI recruitment software that is worth considering

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ROBOTICS RUNDOWN: DEFINING AUTOMATION

AI in recruitment as a new technology is showing incredible promise. It is a fast and growing space ripe with many market entrants -- all with bold claims promising to solve certain business problems.

Some AI recruitment software in existence are making a wide range of claims like: "cut recruitment data overload and get actionable insights"; "our system will help you go from 10,000 candidates to 1"; and "our system will provide personalised responses to each query". To ensure you're making the right choice, it's integral to understand what technology is underpinning each promise.

In this section, we'll help familiarise and define robotics and automation terms before introducing the current products on the market.

PROCESS AUTOMATION
The ability to efficiently automate repetitive, rules-based processes so that software (robots) can perform basic tasks like a human worker.

ARTIFICIAL INTELLIGENCE (AI)
'Intelligence' can be defined as our ability to perceive information and store it for later use where it is applied in a new situation and/or context. With the assistance of innovative software, computers can be 'intelligent'.

NATURAL LANGUAGE PROCESSING (NLP)
One of the most-used forms of AI, where a computer program is able to understand human speech as it is spoken, such as Apple's Siri and Amazon's Alexa.

CHATBOTS

Short for chat robot, chatbots are a computer programs that simulate human conversation or chat through artificial intelligence. They are commonly used in applications like customer service and call centres. Chatbots are typically limited to conversations on a narrow range of topics or singular purpose. As chatbots become more sophisticated, their applications can expand to increasingly complex interactions like candidate queries. When they are incapable of answering a question, often there is built-in functionality that allows the program to defer to a human. Through machine learning (see below), chatbots can learn from their interactions to adapt to more complex queries.

MACHINE LEARNING

Computers typically have to be programmed in order to make them do something. Machine learning (a subset of AI) is the evolution of computer science that gives computers the ability to learn without being specifically programmed to do something. Machines, like humans, can learn from repetitive activity.

PREDICTIVE ANALYTICS

Future-focused data analytics can be referred to as predictive analytics – it is the analysis of historical data to predict future behaviour and outcomes. Whilst most HR leaders today rely on accurate reporting and data analysis to make informed decisions, the HR data is historical and does not typically focus on the future.
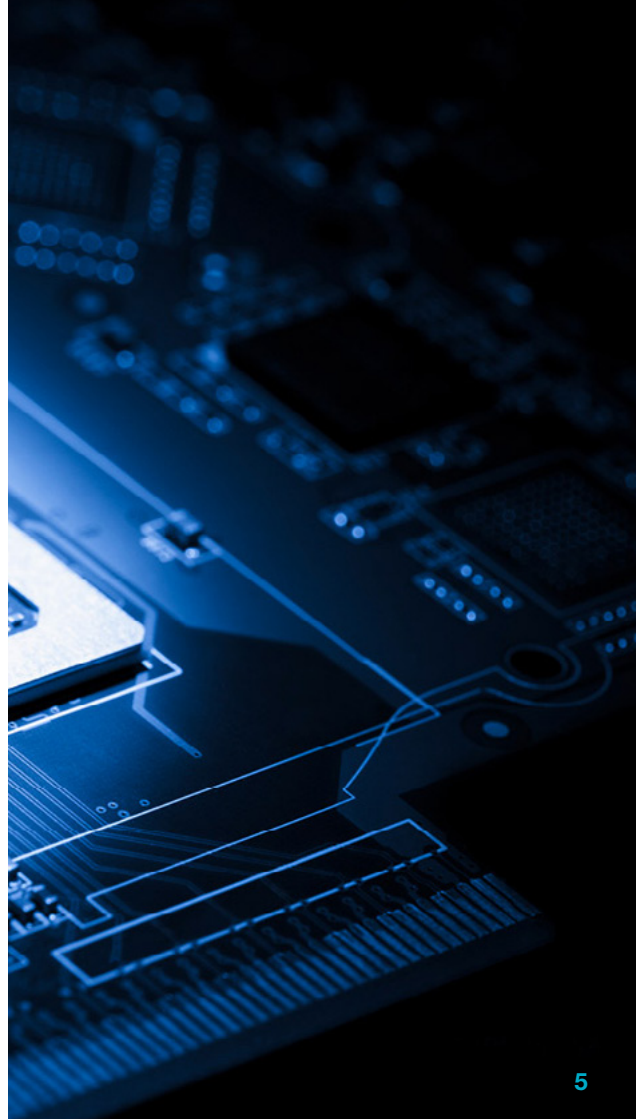
ROBO-CANS & ROBO-CANNOTS

ROBO-CANS
WHAT CAN ROBOTS DO?

Automate tasks
Robots can be programmed to automate repetitive tasks with few unique variations, with complete precision and accuracy.

Not make mistakes
Robotic precision supports zero-error processes - human errors and blunders can be removed once a process is automated. Interestingly, researchers found that humans feel more comfortable interacting with robots that make mistakes.

Manage and analyse data
AI advances are closing knowledge data gaps by consuming and analysing data on a speed and scale that humans cannot match. The input and output is accomplished by humans, so AI can facilitate and identify key learnings.

"Feel pain"
Researchers from Leibniz University of Hannover are developing an "artificial robot nervous system to teach robots how to feel pain" so they can react in kind to avoid potential damage to their motors, gears and electronics.

ROBO-CANNOTS
WHAT CAN'T ROBOTS DO?

Robots and automated tools are making advances, so we can expect many of their limitations to erode as technology evolves. However, specific limitations remain: subjective judgement, creativity, innovation, empathy and passion are characteristics our clients require in recruitment but robotics cannot yet emulate.

Apply judgement

Employers are increasingly using assessment tools as part of the selection process. Judgement tests form a major part of the assessment, but judgment is a complex trait that requires exclusively human experience and values.

Surprise you

Robots can carry out processes they are asked to do and learn from their completed tasks. However, they never deviate from their assigned task, so you will never see spontaneity in their results.

Think creatively

With human minds tasked with recruiting exceptional talent for our clients, we always question how we can improve and reimagine processes and approaches. The creative approach associated with innovation is innately human, and robots cannot replicate it.

Turn data into insights

We've established that robots analyse data faster than humans. However, raw data is rarely of significant value until human minds are able to interpret it and apply it in unique contexts.

AI RECRUITMENT

Recruitment is a high-touch, labour-intensive service industry, so only certain parts of the recruitment process lend themselves to automation. Understanding inter-departmental processes and cultural nuances, developing bespoke engagement strategies and delivering difficult messages require human skills like empathy and critical thinking. Some recruitment processes like cleansing data or scheduling meetings and interviews follow specific process flows, so process automation can be feasible and may be preferred.

Let's consider some of the potential opportunities for automation and the use of AI in recruitment. This isn't designed to be an exhaustive list, but we've reviewed technology platforms that may be worth considering at this early stage.

Applicant screening

AI software can learn from employer data to determine what a strong candidate profile looks like. The software can assess skills, experiences and other qualities that successful candidates and employees have, and compare them to historic data to rank and prioritise applicants.

Interview scheduling

It can be inefficient and labour-intensive for an employee to find availability amongst numerous stakeholders to meet with a candidate. Online tools, such as Calendly (https://calendly.com/), automate interview scheduling to a degree and allow an employer to dedicate their time to higher-priority tasks.

Candidate query management

Chatbots simulate human conversation, or chat, through artificial intelligence. Certain early conversations between applicants and employers can be fairly limited in the nature of the content; straightforward enquiries in relation to salary, policies and culture make chatbots and automation suitable in the recruitment process.

Internal mobility & job matching

Having current employees as a source of talent can foster a culture of career development and personal growth whilst reducing attrition and company 'brain drain'. Chatbots can be used internally to understand employees' skills, strengths and career ambitions, whilst recommending career opportunities they may not have considered (similar to the 'recommended for you' options used by Amazon and Netflix).

AI RECRUITMENT SOFTWARE

The Innovation team at Resource Solutions is dedicated to filtering suppliers and products in a crowded marketplace to ensure the right platform delivers on client objectives. Here we identify early entrants to the landscape that may be worth your consideration.

Arya

Arya is an AI sourcing platform that improves talent acquisition processes through the use of predictive analytics, machine learning, and behaviour pattern analysis. Arya scans job descriptions, identifies required experience and skills and then automatically sources talent from three main sources: internal databases, job boards (Arya already has off-the-shelf integration with CareerBuilder) and social channels.

Arya's automated sourcing functionality offers time efficiencies, but its proposition is most exciting when the machine learning and behaviour pattern analysis is applied. Arya can learn what an organisation's preferred candidate looks like and rank its sourced talent profiles to follow suit accordingly..

Features:
• Automated AI sourcing
• Best-fit identifier
• 'Most likely to move' predictors
• Applicant Tracking System (ATS) integration
• Learn from successful recruiting patterns

"I love the intuitive user experience of Arya. Even without ATS integration, I can drop in a job description and, within a few moments, review perfectly matched profiles from a wide range of sources."
Tom Lakin, Manager - Innovation
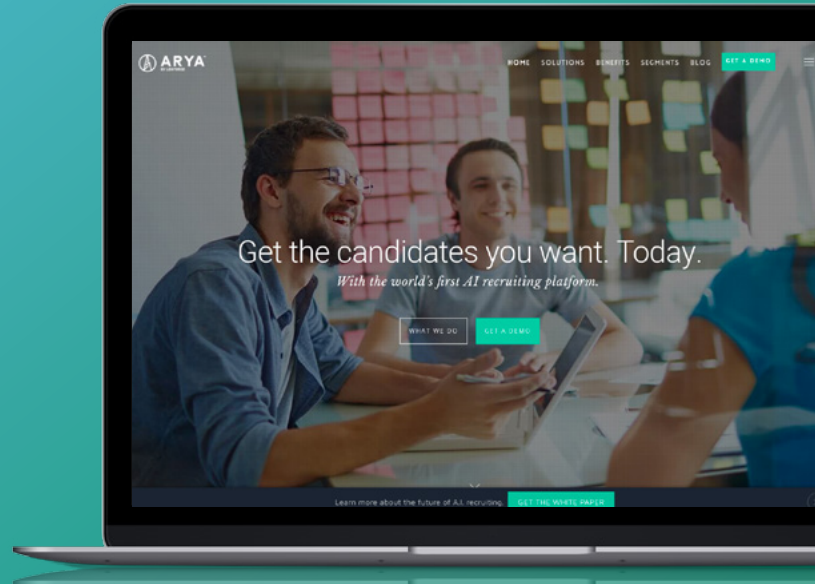
JulieDesk

JulieDesk is an email-based virtual assistant that schedules meetings, interviews and appointments. Like X.ai, JulieDesk is activated by the CC field within an email; once JulieDesk is cc'd on an email, the virtual assistant integrates with the software and responds with potential meeting times. Julie uses Natural Language Understanding (currently French and English) so users can interact with her akin to a personal assistant.

JulieDesk works with Office 365, Exchange, Google Calendar and iCloud.

Features:

- Preferences can be uploaded
  (such as no meetings over lunchtime)
- Julie uses machine learning to pick up on user habits
  and preferences over time
- Unlike some other providers, Julie is not 100% automated;
  Julie emails are checked by human operators before being
  sent to avoid any embarrassing mistakes
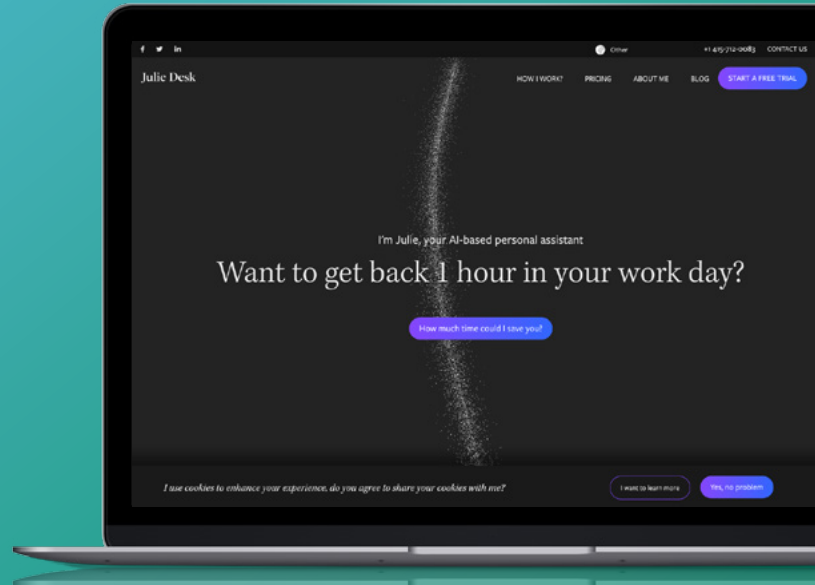
Mya

Mya automates the candidate communications process by providing candidates with up-to-date feedback and guidance throughout the process, and it can answer questions in real-time.

For example: In one scenario Mya initiates a conversation with a candidate after they apply on an organisation's careers site; upon completion of their conversation, Mya sends a scorecard and transcript to the applicant tracking system. Mya will then schedule a candidate interview and update you and your team's calendar.

Mya can understand natural speech and respond with context, allowing her to sound human. With machine learning, Mya's knowledge base evolves as she engages with more candidates.

Mya uses Natural Language Understanding to comprehend nuances in conversations. For example, if Mya asks an applicant if they have any relevant experience and they respond that they "have 2 years experience as a consultant at Robert Walters," Mya will identify three entities: "duration = 2 years' experience", "role = consultant" and "employer = Robert Walters".

Features:
• Applicant screening
• Applicant query management
• Interview scheduling

"We live in an expectation economy where candidates demand immediate feedback and status updates. Mya provides this 24/7 and frees up recruiters to focus on high-touch, value-add activities."
Faye Walshe, Director of Innovation
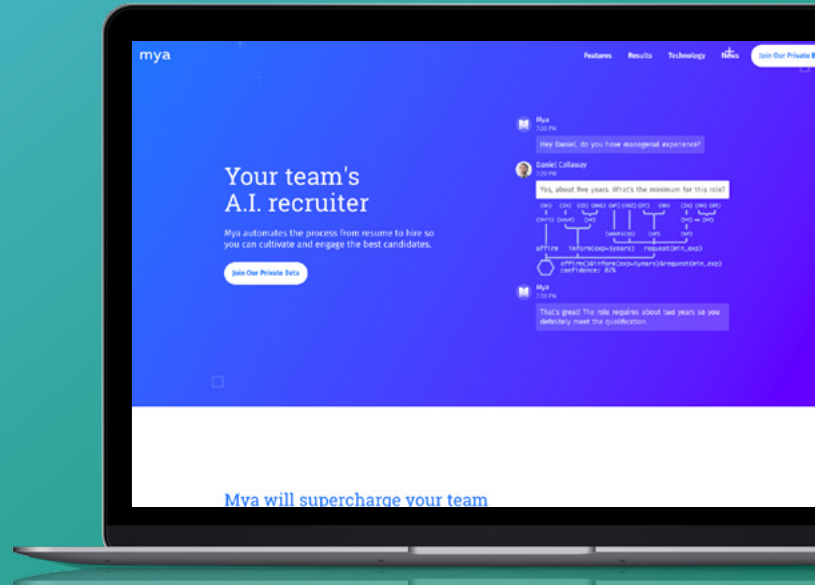
IBM Watson Career Coach

IBM's chatbot is designed to aid internal mobility and its job matching feature is a new development enjoying much pre-launch hype.

Myca, short for My Career Advisor, is a chatbot that can greet job seekers on an internal careers or HR career planning site. It chats with internal applicants planning their next internal move and looking for assistance. Myca highlights internal job opportunities relevant to a candidate's current career experience (information integrated from internal HR records) or their planned career path. Myca uses IBM's Watson technology and can chat using Natural Language Understanding.

IBM plans to launch Myca with early adopters in the summer of 2017.

CLOSE ENCOUNTERS:
ROBOT & HUMAN INTERACTION

Don't like the idea of chatting with a bot? You probably already do.

Dominos: Dom the pizza bot
Dominos made it possible to order a pizza directly within Facebook Messenger by integrating chatbot technology. Users who have an online account and existing orders can initiate a chat with the Messenger chatbot, "Dom," to reorder their last meal, place a quick order, and track their meal's delivery status.

RBS: Luvo
RBS launched Luvo, their chatbot that answers customer questions online and helps direct them to the right place. Luvo's interface is a web chat tool that opens a chat window as you are browsing. The use case is primarily with straightforward requests such as lost pins or corporate bankcards.
Luvo is built using the IBM Conversation tool, an advanced AI engine adept at recognising normal human language. Users can type their question and receive a response as they would if they were dealing with a human.

The AA UK: AAbot
The AA, a British motoring association, launched its careers chatbot, AAbot in early 2017. The chatbot is accessed from the AA careers website and allows prospective applicants to chat with an automated resourcer. The AAbot is limited in its answers: applicants can ask about the company culture, application process and office locations. Once applicants have their questions answered, they can apply for jobs on the website.

AA's cautious approach reduces risk, but it also reduces the chatbot's functionality to little more than an interactive FAQ page. It's an engaging tool, but it is far from replacing an informed resource or talent coordinator who can bring an employer to life.

Chatbot functionality may still have some way to go, but the repetitive nature of recruitment conversations at early stages of a cycle means we anticipate that chatbots will be increasingly used. As with many of the automated processes detailed in this eBook, we forecast that employers will not fully automate early conversations with candidates, the battle for talent would make this too risky - however, humans would be able to join the conversations only once needed.

SoftBank: Pepper
In Japan, there seems to be less fear and more intrigue around the subject of robots and automation. SoftBank in Japan owns the company that manufacture humanoid robot, Pepper, which has the ability to detect human emotion and can adapt its behaviour to suit your mood. To date, more than 140 SoftBank Mobile stores in Japan are using Pepper as a new way of welcoming, informing and amusing their customers. An app market place is in development to tailor Pepper for use in the home and when a limited release of 1000 Peppers went on sale in Japan in june 2015, they sold out within a minute. At the end of 2016, Softbank's robot had been rolled out to greet customers at First Commercial Bank and Cathay Life Insurance in Taiwan and in early 2017 Pepper had secured its first jobs in the US – providing directions at a mall in San Francisco and serving beer at Oakland International Airport. Apparently the novelty worked - In one three hour stretch Pepper had as many as 20 people hooked on every word it said, trying to shake hands and pose for selfies.

AUTOMATION ANALYSIS: CHALLENGES & CONSIDERATIONS

How good is your data?
For AI to learn, it requires a significant amount of quality data. In order to determine what a strong candidate looks like for an organisation, an AI-powered recruiter may need to analyse several hundred to several thousand CVs for a specific role.

AI can learn to discriminate
One of our concerns regarding the use of AI in talent acquisition is to ensure AI helps drive our Diversity & Inclusion (D&I) agenda. AI can remove elements of bias – it can't physically see what a candidate looks like on LinkedIn, but that does not absolve AI from risking D&I initiatives. If there is bias inherent in a business, for example, an employer hires exclusively from a small number of universities, an AI recruiter will learn to prioritise candidates from those universities.

This proposes a serious and very real challenge - Microsoft famously axed their chatbot 'Tay' just 16 hours post-launch when it began to post inflammatory and offensive tweets through its Twitter account.

Data security
An area of concern that continues to grow is cyber security, as the threat of malware (short for malicious software) is increasing. As recruiters handle significant personal data, security should continue to be a major priority.

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