

The impact of Artificial Intelligence in Talent Acquisition Lifecycle of organizations

A Global Perspective

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Abstract—Artificial Intelligence (AI) is the order of the day – there isn't a facet of life (organizational ecosystems included) that AI has not permeated. While AI is making its mark in almost every function in an organization, its impact on the Human Resource (HR) function has to be examined critically, especially so as this is most 'human' of all verticals in an organization. The process of identifying, hiring, engaging, retaining and developing talent is undoubtedly the backbone of good economic health of organizations. AI based systems currently help HR automate a large segment of repetitive tasks in processes such as talent screening, hiring, engaging, re-engaging, employee relations, on-boarding, etc. that used to consume many labor-hours in the past, thereby enabling the HR department to be more efficient, and focus on building compliant and regulatory policies. Among the prominent areas within the HR function that AI impacts, Talent Acquisition is one for which AI has become nothing short of a game changer - Talent Acquisition being at the cusp of talent management lifecycle for organizations. This paper explores the cascaded impact of Artificially Intelligent systems on talent acquisition processes of organizations. It offers a deeper understanding of current AI frameworks and their ability to automate repetitive TA processes increasing process efficiency and effectiveness. Through several case studies of existing AI systems in TA from across the globe, the paper documents the present, also extrapolating the future of Talent Acquisition in AI aided professional environments.

Index Terms— Artificial Intelligence, Bias Management, Machine Learning, Recruitment, Talent Acquisition

I. INTRODUCTION

A land of 1.3 billion people, a land whose biggest opportunity (and challenge) is its people, businesses in our country have their growth trajectories very strongly influenced by the wealth of their human resources and their talent potential. Traversing the people practices history of organizations in India and sketching the evolution of human resources function in the country, one can infer that the Human Resources Management (HRM) framework of companies have come a long way from pure administrative and grievance redressal services to being a critical pillar of organizational strategies. Slicing the HRM framework further to identify the linear progression of efforts, we arrive at "Talent Acquisition" – the initiator activity of the talent management lifecycle.

Till recently, the talent acquisition activities of companies revolved almost exclusively on recruitment – hiring the right people. The process was heavily reactive with recruiters' efforts being focused on filling vacant positions (old positions created by organizational exits and new positions created by business expansion) with the "best fits" and executive succession planning at more senior levels. The interlinkage between talent and business strategy stayed underexplored. However, organizations of today intent on being market leaders have extended the spectrum of their talent acquisition efforts – such efforts are proactive today - factor in long-term and short-term business impacts and go beyond identifying the right talent for current business needs to identifying future leaders of tomorrow through principles of market mapping etc.

We live in times where mapping people's skills to roles, have several long-term and short-term business repercussions. This holds true across the corporate hierarchy. Superimposing this reality with that of increased automation in every aspect of organizational functioning, it is important to understand how technologies of the day aid this ubiquitous business ask of acquiring the right talent with talent acquisition processes increasingly becoming strategic. It is undisputed that the supreme technological unifier today is Artificial Intelligence. How do HR managers (more specifically Talent Acquisition professionals) use AI systems to streamline their recruitment and TA efforts which were previously interactions-driven? How does AI enable process efficiency in time consuming and repetitive TA efforts such as resume screening, resume shortlisting and "best fits" mapping? Are current AI systems capable of predicting potential employee longevity and functional success? What are the human skill sets required to strategically yet ethically deploy such AI led systems? What are the fine lines to be drawn to prevent invasive impact of AI led systems? These are some pertinent questions this paper addresses through case studies and stories of success from across the globe.

This paper is an exploration of the cascaded impact of Artificial Intelligence in the Talent Acquisition process of companies, today. It reports the current role of AI in the talent acquisition efforts of organizations – it critically examines the functioning of

AI led tools in this HR domain. The first segment establishes the existence of AI in talent acquisition, taking India as a case in point, also exploring its potential to eliminate biases in the process. The second section presents case studies from across the globe, describing how AI has changed the functionality of talent acquisition from sourcing/Identifying and on boarding to Talent segmentation; and Employee Engagement. The third section focusses on India's skill proficiency in leveraging AI systems in the talent acquisition space – the AI readiness of Talent Acquisition professionals. Finally, the closing section talks about pros and cons of using AI in TA, also throwing light on the role AI can play in acquiring diverse and inclusive workforces.

II. FUNCTIONAL EXISTENCE OF AI IN TALENT ACQUISITION: ROBOTICS OR MORE?

The term Artificial Intelligence (AI), is sometimes intimidating – especially against a widely conceived notion of AI, being that of a world driven by “Robots”. Today AI is definitely beyond that, robotics being one amongst the many manifestations of AI. From automating (and quickening) repetitive human tasks to enabling predictive modelling, AI is the baseline technology for all futuristic tools. In such a context, it is inevitable that the organizational machinery of the Human Resources function be also impacted by AI. An AI tool has come to being an integral part of every human resource function at organizations, specifically at the Talent Acquisition front.

The business landscape is evolving with a greater focus on quality based productivity. And so is the evolution applicable for the employees who work for these businesses. Just as employees' expectations from companies have gone up, companies have raised the bar on their expectations and expect their future employees/employee prospects to meet job requirements.

Let us look at a simple talent acquisition instance in a small company, set in the past, in the 90s. It begins by posting a job requirement. So the TA/hiring executive will scan through the number of resumes the requirement has received screens, to profile and validate them to narrow down a list out of which the right or suitable candidate will be hired for the job. In a fairly larger company, there could be more than one job posting or there could be multiple requirements for one job posting. In which case, the volume of applications for the same will be huge. Sifting and sorting all those applications can be extremely overwhelming for the hiring manager and can result in various human nuances (like biases and stereotypes) influencing the final shortlist.

Cut to a few years later, many of these large companies deployed Applicant tracking systems (ATS) and candidate relationship management (CRM) systems, that could alleviate the burden of a talent acquisition professional having to look through every single resume. Through the ATS system, the hiring manager could search through vast amounts of resumes and applicant data by keywords, education, location and years of experience.

In place of an ATS, today companies have adopted/ are seeking out more robust talent acquisition systems (TAS) that enable recruitment marketing and on boarding functions as well as help provide feedback to candidates in real-time. While CRMs enable companies to maintain relationships with candidates to feed a proactive sourcing cycle, a talent relationship management (TRM) is an extended system that can track active and passive candidates, contingent workers and current employees.

Such inclusive approaches will help build more robust talent networks for organizations by enabling the outreach to all segments of talent community, also encouraging more ambassadors and referrals. In all this, technology allows for improvements in efficiency, scalability and cost-management.

This is where Artificially Intelligent systems come to our aid to make the human minds more efficient. In the realm of Human Resources Management, AI can play a large role in reducing biases in candidate assessments, improving relationships with employees, improving metrics, improving workplace environment, so on and so forth. Apart from automating transactional activities, AI systems armed with their ability to process huge volumes of data and do deep and wide learning. Figure 1 is an illustration of the existing impact of AI in various organizational functions:



Figure 1: Impact of AI in various organizational functions.

Source: PwC Consumer Intelligence Series. [1]

A recent Social Recruiting Survey from Social Talent revealed that, on average, a recruiter identifies 225 potential candidates for each individual position, with a conversion rate of just 0.4 per cent. On the other hand, the best recruiters are estimated to

identify 91 potential candidates per position with one per cent conversion rate and a consequent efficiency increase of 150 per cent [2]. AI platforms can further accentuate these success rates.

Predictive Hire, a cloud-based SaaS analytics solution provider, found that one of its Australian clients could have saved 1.1 million Australian dollars by using a pre-hire assessment tool. Without the tool, the client hired 80 people over 12 months but lost 800,000 Australian dollars on those appointments, as measured in people costs offset by the revenues they generated [3].

At this juncture, it is important to look at the tasks and roles AI can augment today and in the near future, to ensure that the current workforce and the generations that follow, to stay future ready and employable. In Figure 2 are presented the skills for the future and the list of skills that are going to be taken over by AI (are at risk), according to a recent World Economic Forum's "Future of Jobs" Report [4].



Figure 2: Skills for future, Skills at Risk [2]

III. AI IN TALENT ACQUISITION: CASE STUDIES FROM ACROSS THE GLOBE

Intuit

Intuit, a global financial software company, tasked with hiring over 6,000 employees a year, uses AI to significantly narrow down talent pools, to identify resources that are most likely to engage with the company and also to identify candidate leads not previously considered [5]. The company is developing an algorithm-driven platform that scores and matches potential recruits to open positions, also based on the similarity with profiles of its top performers.

Vodafone

London-based telecommunications company Vodafone saves time and money while assessing many more applicants than human recruiters ever could by using AI-powered video interviews instead of phone screens. Job seekers record themselves answering standardized questions, whereupon robots analyze the interviews and assess candidate suitability across 15,000 different dimensions, from body language and facial cues to voice intonation and speech cadence. The top-ranked candidates are then invited to in-person interviews [5].

Unilever

Unilever, the global FMCG giant, has used artificial intelligence to screen all entry-level employees in 2017. Candidates play neuroscience-based games to measure inherent traits, and have recorded interviews analyzed by AI. The company considers the experiment a big success and will continue it indefinitely. The company says that it has dramatically increased diversity and cost efficiency [6].

IV. AI IN TALENT ACQUISITION: THE PRESENT PERCEPTION, THE FUTURE PERCEPTION

A global study by Deloitte in 2017 on Global Human Capital Trends, concluded that attracting skilled resources no longer remained the responsibility of HR. It now stands as a top concern of business leaders, ranking third in the survey in 2017. More

than 8 in 10 (83 percent) executives surveyed said talent acquisition is important or very important [7]. Figure 3 is a representation of the relative significance, geographies from across the globe attached to AI in TA.



Figure 3: Importance of AI in Talent Acquisition: Perceptions from across the globe

Another annual study on talent acquisition, specifically recruitment that this paper examines is the 2017 LinkedIn Report on Global Recruitment Trends [8]. One of the most critical findings of the study run across the globe was that Automating the screening and hiring process in order to eliminate human bias and time limitations will shape the future of recruiting. Big enterprises will focus more on harnessing big data. When this fact is consumed along with the finding that hiring volumes are expected to increase 76% in 2018 in India – the largest for any geography surveyed and that 63% of business leaders from India are expecting a significant expansion of recruitment budgets, it may be concluded that the role of AI in increasing the effectiveness of the TA lifecycle is significant [9]. Figure 4 is an illustration of the projected increase in hiring volumes in the same year. The study further pointed out that 29% of respondents felt that the top most trend for recruitment in 2018 would be smart use of big data, another 34% said innovative interview tools are something that are watching out for – both essentially curated by AI systems.

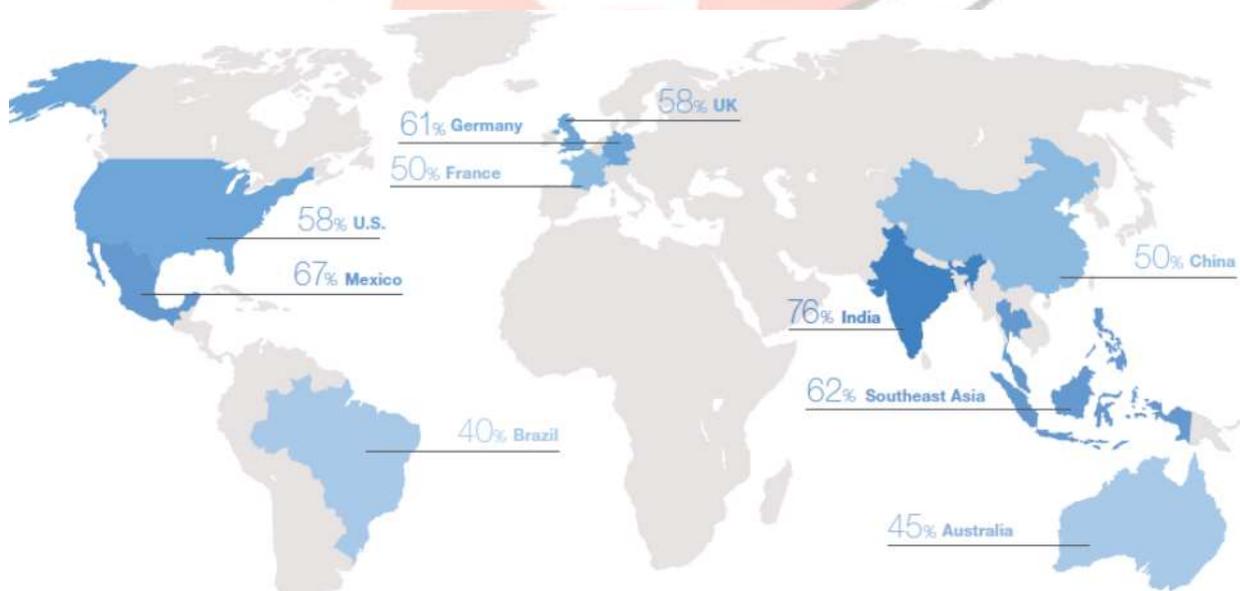


Figure 4: Projected increase of hiring volume across the globe

The Harvey Nash Human Resources 2017 Survey [10] found that 15 percent of HR leaders polled from 40 countries said artificial intelligence and automation are already impacting their workplace plans. Another 40 percent said they expect AI and automation to affect their plans within two to five years. Mercer’s Global Talent Trend [11] study in 2017 reported that “digital” or “mostly digital” organizations are best positioned to have change agility and achieve business success in a digitally evolving world. In a 2017 study by Career Builder11, it was found that 60% of job seekers report they have quit an application due to its length or complexity [12] and 80% of job seekers say they wouldn’t reapply to a company that didn’t notify them of their application status [13]. These are significant call-outs to organizations to adopt technology to eliminate systemic delays, to help better the hiring experience.

Another India specific study on “Role of Technology in Recruitment” in 2017 [14] was the People Matters and Param.ai study that was designed and conducted with the objective to understand how leading companies in India use technology at every stage of recruitment- sourcing, screening and interview and selection. The study found that organizations in India are still at a nascent stage when it comes to adopting the recruitment technology as there was a stark difference between current and desired rate of technology adoption (approx. 40%). Hence, the community, in future see themselves leveraging technology in a big way that creates an impact on business. According to this study, the Top 5 recruitment priorities for the year 2018 are as shown in Figure. 5. Figure 6 is a representation of the extent to which Corporate India is currently adopting technology in various phases of recruitment (based on the same study).

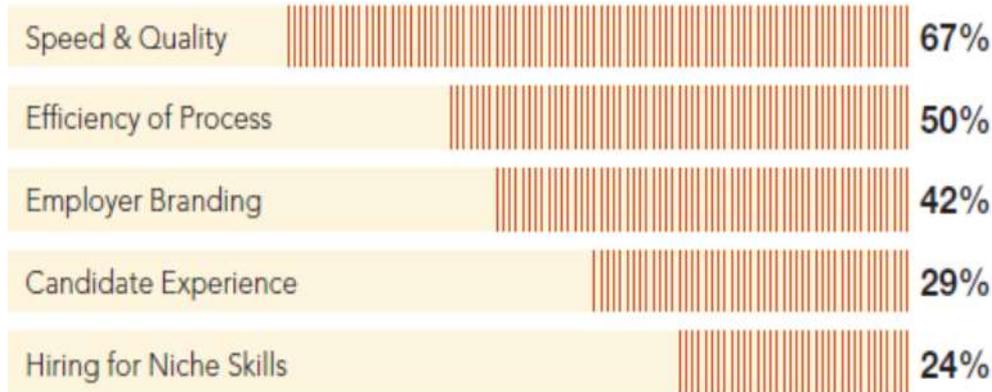


Figure 5: Top 5 Recruitment Priorities for 2018 [14]

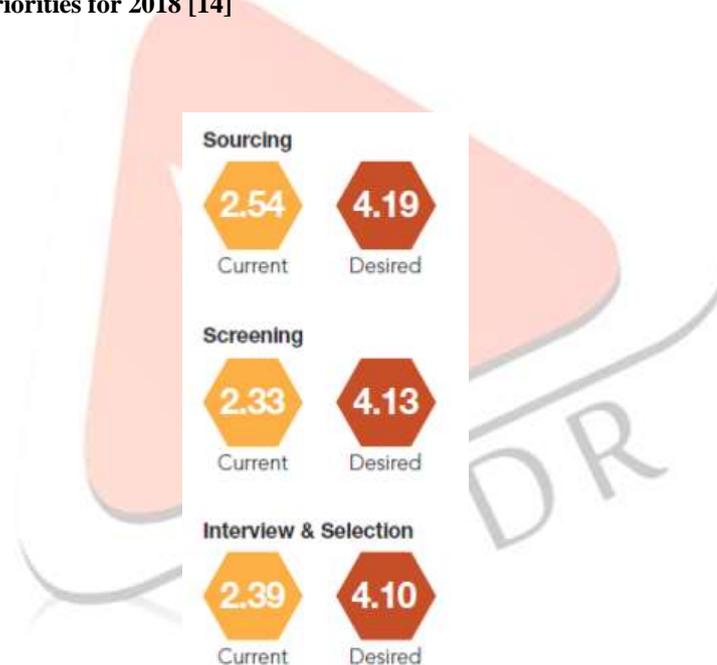


Figure 6: Impact of Technology in recruitment practices [14]

V. AI IN TALENT ACQUISITION: A FUNCTIONAL DEEP-DIVE

Conventionally, the talent acquisition function of businesses was perceived to be static, with a pre-defined, set process flow. With the ever changing dynamics of business, the function is becoming more fluid –to keep pace with the technological changes. The challenge today is to create an environment that facilitates feedback using an institutionalized process.

Artificial Intelligence had begun to make an impact on the HR, especially in the Talent Acquisition, since 2016. With more and more technological advancements by the day, coupled with the improvements in the overall global economy, we can expect to see more businesses implementing innovative solutions and applications, all along the TA process flow, that will bring the desired business results.

In this section, the impact of AI in the Talent Acquisition lifecycle is examined in a fragmented across the following phases:



Figure 1: The Talent Acquisition Lifecycle [15]

What follows are fictitious accounts of AI influenced systems for each of the above listed phases.

Hi-Soft Infotech is a multinational IT consultancy firm based out of Bangalore that has been in its space for a decade now. The firm that never faced major talent crises during the slowdown days, now is facing the biggest threat ever – talent shortage. Grappling with reasons, top leaders sat down to redesign their recruiting strategy from the more conventional methods of searching combining keywords to getting suitable names profiles from the ocean called Internet to a more specific smarter, effective search. Their discussions involved a complete dissection of the different stages of lifecycle recruiting, namely, Preparing, Sourcing, Screening, Selecting, Hiring and onboarding. It was unanimously decided that Technology of the time – AI and Big data systems were the way to go.

Preparing

Hi-Soft's preparedness towards better hiring began right from the stage of preparation, for the hiring process, that will obliterate duplicate entries. Putting to best use, their in-house AI capabilities, they developed an effective AI tool that pulled qualified candidates that were buried in the firm's existing Applicant Tracking System (ATS) data to match with potential openings, communicate with the qualified candidates and also follow up with those top candidates, by a customized re-targeting mechanism.

Sourcing

Hi-Soft had an urgent need to increase its social media presence to tap into a fresh talent base. The development team used AI capabilities to crawl the web and understand unstructured data in several e-tech forums and other open, online discussion groups, in addition to traditional social media sites. The likelihood of these bots finding a best fit profile was much higher, as they were also able to predict the probability of candidates looking for a job change.

Screening

Hi-Soft deployed machine learning based systems for speeding up screening by automating tasks like screening resumes, identifying high potential candidates and also finding behavioral traits that will guarantee a better organizational fit. Machine learning based filtering increased the HR leaders' efficiency by screening the maximum number of candidates in the shortest possible time.

Selecting

With a reduced short listing time, candidates were quickly prioritized based on their skill sets, experience, social media presence, and various other aspects the tool was devised to identify with. For both the TA managers at the IT firm and job seekers this was a big relief as within minutes of being identified to be eligible, he or she got to hear from the recruiting manager instead of the never ending wait in the earlier non-AI days.

Hiring

With the entire process automated and system controlled, the HR managers realized there was no time lost in getting stakeholders' approvals ultimately, increasing the net hiring speed. With quicker communication, the tool reduced the total time taken to fill vacancies leading to a win-win situation for job seekers, TA managers and team leaders involved in the entire process.

Onboarding

Hi-Soft deployed AI systems to analyze structured data for answers, to pull answers based on these patterns, and by aggregating company information, new employees were rest assured that they were receiving accurate response. This was also important for the company that had its majority of employees from the millennial generation with a different communication preference. So, instead of the tedious forms, the chat-bot requested newcomers with important documentation and other materials through a series of questions in a conversational interface. This enabled the HR managers and team leads to focus on human engagement with the employee instead of dealing with endless paperwork.

VI. EMBRACING AI FOR TA: THE PRE-REQUISITES

Preparing an organization for this new era of recruiting begins with up skilling the talent acquisition function, defining the next generation skills and preparing for business deliverables as well as outlining strategies to attract the right talent to attain those deliverables. EY's recent research found that the lack of talent and qualified workers is the greatest single barrier to the implementation of AI across business operations [16].



Figure 8: Challenges in building AI capabilities in the organization [17]

Equipping a recruiter with AI faculties and familiarizing him/her with cognitive solutions will enable them to work faster, limit time spent on administrative tasks, and give them more informed access to larger pools of high potential recruits. AI-equipped managers will be able to make better predictions for performance success while focusing fully on the core of recruiting – building and nurturing relationships.

To give an example, at IBM, the company is upskilling its talent acquisition function through a mix of formal and informal learning using an agile approach. It has created an apprentice program through which more than thousand digital badges have been earned through online courses and mentorships and digital credentials that will to unlock the skills needed to become digital recruiters [18].

A survey by Willis Towers Watson revealed that very few companies and HR functions are fully prepared to address the organizational change requirements related to automation. Only 12 per cent out of the 909 companies surveyed worldwide including 52 Indian companies believe that their HR functions are fully prepared for the changing requirements of automation. The same survey revealed that companies in India expect the use of automation in the workplace to increase from the current 14 per cent to 27 per cent in three years, higher than the global and APAC average [19].

Google and Microsoft are developing AI ecosystems in India from in-house training programs to improve solution performances. The two giants are using India as a testbed for launching AI-based applications and are also taking a number of initiatives to boost AI talent with training programs [20].

The current government is also taking a lot of concrete steps to move towards Sustainable Development Goals (SDGs) with the help of AI by 2030 [21]. There has been a spate of announcements in the last year and this year's Union Budget to consolidate India's position on the global AI map.

VII. BIAS MANAGEMENT THROUGH AI: THE TA ADVANTAGE

Leveraging AI capabilities to eliminate biases to ensure access to a diverse talent pool, is a widely practiced TA method in many organizations. AI when enabled in Talent acquisition is capable of eliminating unintentional perpetuation and promotion of historical biases in organizations. For example, a screening tool can be programmed to ignore demographic factors such as age, gender, ethnic origin, etc. The probability of job applicants being objectively assessed is much higher, hence.

AI systems build their intelligence through machine learning. The vaster the data feed is for the machines to learn, the higher is their artificial intelligence quotient. Ensuring that the databases that machines learn from, are carefully curated to build bias-free systems, is something that TA professionals need to keep a close watch on. With this pre-condition in place, the AI-led Talent Acquisition aid, can eliminate biases along different phases in the Talent Acquisition lifecycle, setting the tone for an inclusive workforce.

The flip side is that, automated screening may not identify soft skills, there might be lack of human judgement capabilities, and the onus will be on the thought leaders and HR managers to ensure that the AI framework is free of any human biases. also

may overlook certain cultural fit aspects. While the instant automation will save time, streamline recruitment process and also offer immediate communication to candidates, this also limits the interactions to machines. With the entire process being automated, responses to candidates may lack human emotions and personal touch.

A face to face interaction with the current technology, cannot be entirely replaced by an AI system. To ensure diffusion of emotional intelligence in the selection process, it is important that such systems are used as aids in the journey of organizations towards building a Diverse & Inclusive workforce.

With no ground rules written for developing an AI tool (very often, open source, crowd collaborated groups), a lot of burden falls on the systems and on those who develop AI systems in organizations. While the machines can reduce the drudgery of monotonous work, the onus will be on the thought leaders and HR managers to ensure that the AI framework is free of any human biases.

VIII. CONCLUSION

Artificially Intelligent systems are today's reality and tomorrow's foundational technology, across the cross-section of business operations. Against this context, it is inevitable that organizations identify, leverage and embrace AI for effective management of the most critical of all organizational resources – human resources. As talent management is critically dependent on the efficiency of talent acquisition processes of an organization, this paper discussed the present of AI in talent Acquisition systems, across different stages in the TA lifecycle.

However, it needs to be remembered that, AI cannot completely replace the human element in the human resources function. HR and TA leaders should design their strategy by ensuring they are making the best use of their resources empowering recruiters with technology. A good starting point would be to automate routine and repetitive hiring tasks such as screening and then progress towards higher intelligence-based hiring tasks such as candidate engagement.

A survey by Allegis Global solutions [20] revealed that 58 % of job seekers are comfortable interacting with AI apps and more than 60 % are happy to interact with chat-bots to answer initial questions and scheduling interviews with employers. According to the Deloitte's 2017 Human Capital Trends report, a large number of companies expect AI and robotics to be fully implemented in their businesses within the next five years [7].

Now is the time to adopt AI to gain a competitive edge in recruiting. AI is empowering recruiters today to become smarter and more efficient by significantly enabling the hiring process. Utilizing AI tools present in the market, recruiters can revolutionize their recruiting strategy, every day. Combining Human Intelligence to propel AI forward, especially so in the Talent Acquisition function, holds a huge promise for organizations – that of best fits driving organizational efforts across business dimensions!

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