The Use of AI and Algorithms for Decision-making in Workplace Recruitment Practices

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ABSTRACT

The use of artificial intelligence (AI) and algorithms in human resource management systems has increased in recent years significantly due to the COVID-19 pandemic and the rise of remote work. Research has shown that implementing AI systems in different workplace scenarios increases efficiency, reduces worktime, production and labor costs and the need for human workers to perform the tasks that AI systems can perform. Within human resource management practices, AI systems have been employed to do a multiple array of tasks such as: screening candidates, performance evaluations, facial and voice analysis during candidate interviews, training, and development. Other recruitment practices that employ AI systems are considered to have implications that make employers liable for possible discrimination which could occur as an adverse effect of having these systems partake in the decision-making process for employee selection. Certain authors have recognized the lack of the human factor in this process as detrimental and increases the possibility of error and bias in selection of candidates. This study explored the use of these AI systems in the workplace and what regulations have been created to oversee how they can be employed for recruitment practices. It also aims to highlight the positive and negative impact of these AI supported practices. The results highlight the importance of regulating these practices as an effort to protect minority rights and privacy rights of people that are seeking employment. Identifying international and national legislation is necessary for adopting better regulated practices and guaranteeing worker's rights.

Introduction

In the last century, technological advances have consistently transformed the way society interacts and works together. This is particularly true for workplaces and the tasks employees execute daily. Workplaces experience constant changes, particularly when implementing new technologies. These changes tend to occur due to external forces that force workplaces to adopt them for their multiple benefits.[1] Recently, due to the COVID-19 pandemic, there has been a significant increase in remote jobs and telework. This has drastically changed the way employers and employees interact and, in a sense, has removed the physicality of the workplace. The limitation of not being able to go outside and work in person at the office space became a challenge easily overcome with the help of technology. This emergency gave rise to virtual workspaces, mostly within the employee's homes. Managing employees that worked remote was another challenge that needed to be overcome for workplaces to continue producing and staying afloat during the pandemic. This has also induced technologically supported recruitment and increased the demand for adopting automation and artificially supported technologies.[2]

[1] Deranty, Jean-Philippe, and Thomas Corbin. "Artificial Intelligence and work: a critical review of recent research from the social sciences." (2022).
[2] Lau, James. "Future of Work in an Age of Automation, Artificial Intelligence and Technology." *Artificial Intelligence and Technology (July 7, 2020). International In-House Counsel Journal* 13, no. 52 (2020).

Among the technological advances developed, artificial intelligence seems to be very promising. Artificial intelligence (AI) is defined as work processes realized by machines that would normally require intelligence if performed by humans.[3] AI can be differentiated into two types: weak and strong. An example of weak AI are computers that serve as an instrument to investigate or carry out a cognitive process, in other words the computer simulates intelligence. While strong AI has computer processes that involve self-learning based on their programming. Strong AI can optimize its own behavior and connect with other computers to create large scale effects and automate complex processes.[4]

On the other hand, algorithms are a set of rules or specifications used to program computers to perform a task or process. Algorithms can be used as instructions for machine learning, the process where computers use information to "learn" and modify their behavior or improve the process. A common practice is using algorithms to have program computers to carry out repetitive monotonous tasks. Algorithms can be used for predictive capabilities using a big set of data from which it carries out machine learning processes.

Artificial intelligence is changing the way human resources can be managed, improving the quality of the work, reducing costs and tend to organizational inefficiencies. Although these fast changes pose challenges from a legal, ethical, and technical standpoints, human resource practitioners need to develop expertise into these fields. This would further increase the potential of its use and tackle the challenges this convergence of fields poses. Studies further suggest for policymakers to create support for organizations and promote the use of AI in Human resource management.[5]

These changes in workplaces have fundamentally modified the systems and processes that current employment law regulates. This means that current law does not consider the new technologically assisted practices such as the predictive capabilities of algorithms and artificial intelligence. If these new practices are employed with no discernment and irresponsibly, they will likely infringe worker's privacy rights and other fundamental rights.[6] Presently, these technologies are mainly implemented by big companies that are financially capable of affording these, meaning that more digitalization advancements will occur in western countries rather than developing ones. The surge of these practices has raised alert to the how liable these employers are now that they implement these AI systems.[7]

Regulating these systems becomes imperative due to the importance AI use has in our society. Particularly due to the high impact processes in which AI is involved with. High impact processes that use AI systems needs to be trustworthy, reliable, and efficient enough that they will not discriminate, even implicitly in ways that could be potentially harmful to people. To achieve this, a legal framework must be established at a federal and national level.[8] Technology is not developed with features that automatically guarantee protection to workers and therefore, it is up to policymakers to legislate and regulate its use and guarantee safeguarding worker's rights.[9]

[3] Geetha, R., and Sree Reddy D. Bhanu. "Recruitment through artificial intelligence: a conceptual study." *International Journal of Mechanical Engineering and Technology* 9, no. 7 (2018): 63-70.

[4] Wisskirchen, Gerlind, Blandine Thibault Biacabe, Ulrich Bormann, Annemarie Muntz, Gunda Niehaus, Guillermo Jiménez Soler, and Beatrice von Brauchitsch. "Artificial intelligence and robotics and their impact on the workplace." *IBA Global Employment Institute* 11, no. 5 (2017): 49-67.

[5] Bibi, Munaza. "Execution of Artificial Intelligence Approach in Human Resource Management Functions: Benefits and Challenges in Pakistan." *Sarhad Journal of Management Sciences* 5, no. 1 (2019): 113-124.

[6] Hendrickx, Frank. "Privacy 4.0 at work: regulating employment, technology and automation." *Comp. Lab. L. & Pol'y J.* 41 (2019): 147.

[7] Friedman, G., and Thomas McCarthy. "Employment law red flags in the use of artificial intelligence in hiring." (2019).

[8] Schwartz, Reva, Apostol Vassilev, Kristen Greene, Lori Perine, Andrew Burt, and Patrick Hall. "Towards a Standard for Identifying and Managing Bias in Artificial Intelligence." (2022).

[9] Carby-Hall, Jo, and Lourdes Mella Méndez, eds. *Labour law and the gig economy: challenges posed by the digitalisation of labour processes*. Routledge, 2020.

Due to high demand and increased use of AI-driven recruitment tools, the potential for unfair hiring practices increases as well. Some authors suggest mandatory auditing for AI tools to guarantee they safeguard workers' rights and don't pose any threat to their wellbeing. Authors believe these audits should assess different aspects of the hiring system: risks (compliance, reputational, financial and governance); data (input and output); model (parameters and objective); development (building process, training for algorithm and process documentation); verticals or performance (disparate impact ratio, statistical parity, equal opportunity difference and transparency. Workplaces that are not implementing audits of this nature, fail to improve their processes and guarantee safeguarding worker's rights.[10]

This article will explore how artificial intelligence and algorithms are being used for recruitment purposes. One of the objectives is to identify different AI supported human resource practices and their benefits and risks. The article also aims to study how these AI enhanced practices have been regulated in different countries.

Artificial Intelligence and Algorithms in the Workplace

This section will discuss how artificial intelligence and algorithms have been implemented in the workplace. This section will present different human resource management practices that have been enhanced with AI technology.

Authors denote that the fourth industrial revolution will bring technological advances to the labor market, with artificial intelligence, big data and cloud computing changing the way tasks are done. This is currently happening with human resource managers and the talent acquisition process; it is now moving into digital recruitment.[11]

AI systems and algorithms have been implemented to facilitate many human resources management processes, particularly for recruitment purposes. Many workplaces have adopted these technologies to shorten time for processes, increase production, remain competitive within the job market and other economic factors. With the rise of AI and algorithms in the workplace due to the COVID-19 pandemic, remote businesses have been forced to implement these systems to be able to screen numerous candidates worldwide.[12] AI is used to analyze and represent data in a simple way for employers which can help them make better decisions.[13] AI's have the upper hand in processing big amounts of information at a faster speed than humans. AI enhanced technology help humans make better decisions since they have the capacity to identify important things by sifting through big datasets.[14]

Employers have found ample benefits in adopting AI technology, as compared to human workers, these are not influenced by external factors becoming more cost-effective and efficient in the long run.[15] In addition, robot workers are less expensive than a human worker, it cannot get sick and will not require vacations or paid time off, further making them more attractive to adopt for employers.

Much of these screening tasks require human workers evaluating every candidate, which can be time consuming and expensive. With AI- assisted technology, the hiring process to be done in a shorter time. Implementing autonomous computer systems result in less manual repetitive work for human workers, allowing them to focus on

[10] Kazim, Emre, Adriano Soares Koshiyama, Airlie Hilliard, and Roseline Polle. "Systematizing audit in algorithmic recruitment." *Journal of Intelligence* 9, no. 3 (2021): 46.

[11] Oswal, Nidhi, Majdi Khaleeli, and Ayman Alarmoti. "Recruitment in the Era of Industry 4.0: use of Artificial Intelligence in Recruitment and its impact." *PalArch's Journal of Archaeology of Egypt/Egyptology* 17, no. 8 (2020): 39-47.

[12] Friedman, G., and Thomas McCarthy., *supra* note 7.

[13] Mahmoud, Ali A., Tahani AL Shawabkeh, Walid A. Salameh, and Ibrahim Al Amro. "Performance predicting in hiring process and performance appraisals using machine learning." In *2019 10th International Conference on Information and Communication Systems (ICICS)*, pp. 110-115. IEEE, 2019.

[14] Jarrahi, M. H. (2018). Artificial intelligence and the future of work: Human-AI symbiosis in organizational decision making. *Business horizons*, *61*(4), 577-586.

[15] Wisskirchen, Gerlind, Blandine Thibault Biacabe, Ulrich Bormann, Annemarie Muntz, Gunda Niehaus, Guillermo Jiménez Soler, and Beatrice von Brauchitsch., *supra* note 4.

other tasks that require higher cognitive skills. Another tasks that AI is used for is matching resume keywords and patterns that have been previously identified ideal for the position. Al systems reject or select candidates' resumes based on the based on certain keywords or characteristics that predicts successful performance in the company. AI enhanced systems can screen candidates based on the content of their online profiles, while algorithms can be programmed to sort the received resumes, using face and voice analysis software to evaluate for certain ideal characteristics and competencies. Some researchers proposed a hiring process with a model of AI that predicts a candidate's performance by comparing it to current and previous employees. This facilitates the hiring process by creating standards based on historical performances of employees. The downside to using models like these is that they require large datasets with data related to performance metrics, personal information, and employee conditions to make effective recruitment decisions.[16]

With the AI-supported technology, recruitment systems can help with screening candidate resumes by using algorithms that automate the process[17]. Autonomous computer systems can be programmed for decision making process by giving them objective standards that serve as the only selection criteria, removing emotional factors that is ever present with human workers. This is believed to make for more accurate and unbiased decisions that will improve functionality and guarantee the employer better results.[18]

Employers have begun to employ artificial intelligence to support and enhance the way many work tasks are done. Research has shown that workplaces have adopted artificial intelligence supported technology for human resources management and their processes. Amongst this recruitment strategies have been drastically modified and enhanced with this technology. Organizations aspire to have effective recruitment strategies since this will help them attract skilled employees and develop a better talent pool capable of meeting the companies' objectives. AI and machine learning have been used in this process because it reduces costs and time from the candidate and the company, leading to having a candidate in the role quicker than expected. AI is used in the following ways: candidate screening; candidate engagement; re-engagement; post-offer acceptance; employee engagement; compensation management; performance management; new hire on-boarding; career development; employee retention employee relations and scheduling.[19] While for training and development, it's been used to identify training needs and identifying career paths for employees basing off the employee's profile and their desired skills to develop.[20]

Impact and challenges of AI in the workplace

This section will discuss the impact and challenges that workplaces face when they implement artificial intelligence supported technologies. While using AI- supported technology has many benefits, studies indicate that implementing these technologies have the potential to cause adverse harm and violate workers' rights without proper regulations.

The main problem with adopting these AI systems impose is the possibility of infringing on people's civil rights and guaranteeing equal opportunity for all when implemented in decision making processes, such as employment.[21] One of the main challenges that impose using AI and machine learning for personnel selection lies in justifying the results when the predictive capabilities of these systems could be results of "black box" or too complex to explain

[16] Mahmoud, A.A., Shawabkeh, T.A., Salameh, W.A. and Al Amro, I., supra note 13.

[17] Premnath, Eric, and Arun Antony Chully. "Artificial intelligence in human resource management: a qualitative study in the indian context." Journal of Xi'an University of Architecture & Technology, XI (2020): 1193-1205.

[18] Wisskirchen, Gerlind, Blandine Thibault Biacabe, Ulrich Bormann, Annemarie Muntz, Gunda Niehaus, Guillermo Jiménez Soler, and Beatrice von Brauchitsch., *supra* note 4.

[19] Geetha, R., and Sree Reddy D. Bhanu., *supra* note 3.

[20] Premnath, Eric, and Arun Antony Chully., *supra* note 18.

[21] Babazadeh, Natasha, Angela Washington, and Tiffany Brown. "Civil Rights in the Digital Age: The Intersection of Artificial Intelligence, Employment Decisions, and Protecting Civil Rights." *Dep't of Just. J. Fed. L. & Prac.* 70 (2022): 57.

and interpret.[22] Other authors point out that the challenge of using AI for recruitment lies with the high costs of these systems, ensuring cybersecurity and limiting the AI's potential for developing an unidentified bias while learning about human behavior.[23]

Bias & Discrimination

One of the main risks of using this technology is bias and discrimination. Implementing AI and algorithms in recruitment systems have been shown to contain bias and cause adverse impact discrimination. Recruitment practices with these systems if left unchecked could incur in practices that discriminate against protected classes. The AI system that uses pre-existing employee data to predict new successful candidate will do so basing its decision off the data set it was programmed with.[24]

Bias is defined as a type of prejudice against or for a group that is based on a stereotype or opinions. In machine learning, bias can occur because of systemic erroneous assumptions. Bias can lead to discrimination when AI develops through machine learning how to employ its own criteria for recruitment. This bias can be a product of the data set (limited to historical employees), product of machine learning, potential errors in programming or introduced into the programming by the programmer.[25] Other authors note that, AI are sociotechnical systems and that their bias go beyond a computational level and embraces the notion of having some human guidance when employing these systems in decision making processes- "by keeping a human in the loop".[26]

According to the authors, the use of AI can cause disparate impact and disparate treatment of protected classes if they are not audited and validated for potential bias. These systems require developing large data sets and collecting this amount of information has the potential to violate federal privacy laws. These systems have the potential to violate Title VII and Title VI of Civil Rights Act if the hiring practices are based on the current and past employees. In the case that the data set it uses has employees that are mostly white, and its selection criteria perpetuates this hiring practice. This type of bias needs to be considered when developing the algorithm for it. It can violate the Pregnancy Discrimination Act if it does not consider sex and analyzes sick leave during pregnancy as increased absenteeism. The AI can violate the Age Discrimination in Employment Act (ADEA) by screening out older candidates if they are unfamiliar with the hiring platform or do not have access to computers and the right technology. The Americans with Disabilities Act (ADA) can be violated if the AI takes into consideration information related to physical activity or activities that certain candidates cannot perform or have trouble performing because of their disability. The decisions the AI makes can result in a claim of adverse impact if the decisions appear to be based on stereotypes and other assumptions regarding protected classes.[27]

For example, the system HireVue uses for video interview and assessment. It had been previously criticized for discriminating against people with disabilities. Currently, it no longer relies on facial analysis, but it continues to use audio analysis within its algorithm. The legal issue stands if AI are programed in ways that might manifest

[22] Gonzalez, Manuel F., John F. Capman, Frederick L. Oswald, Evan R. Theys, and David L. Tomczak. ""Where's the IO?" Artificial intelligence and machine learning in talent management systems." *Personnel Assessment and Decisions* 5, no. 3 (2019): 5.

[23] Al-Alawi, Adel Ismail, Misbah Naureen, Ebtesam Ismaeel AlAlawi, and Ahmed Abdulla Naser Al-Hadad. "The Role of Artificial Intelligence in Recruitment Process Decision-Making." In *2021 International Conference on Decision Aid Sciences and Application (DASA)*, pp. 197-203. IEEE, 2021.

[24] Sullivan, Charles A. "Employing Ai." *Vill. L. Rev.* 63 (2018): 395.

[25] Bernhardt, Annette, Lisa Kresge, and Reem Suleiman. "The Data-Driven Workplace and the Case for Worker Technology Rights." *ILR Review* (2022): 00197939221131558.

[26] Schwartz, Reva, Apostol Vassilev, Kristen Greene, Lori Perine, Andrew Burt, and Patrick Hall., *supra* note 8.

[27] Mainka, Spencer M. "Algorithm-Based Recruiting Technology in the Workplace." *Tex. A&M J. Prop. L.* 5 (2019): 801.

unconscious biases based on the programmers' biases and data input.[28] This would suggest having a human worker overlooking this process would ensure safeguarding minority rights while undergoing this recruitment process.

Another example, for people with autism who are characterized by differences in nonverbal communication and self-expression. When they undergo recruitment that is enhanced by AI's. These can fail to properly gauge and read pre-determined facial expressions during interviews. AI's can be programmed to have similar bias as people, this could potentially support workplace ableism, where certain practices and believes discriminate against people with physical, intellectual, and psychiatric disabilities.[29] Systems like these can potentially violate Americans with Disabilities Act (ADA) and the Rehabilitation Act of 1973.

Facial expression recognition (FER) is an example of a machine learning model used in AI systems. FER uses a dataset of face images that the machine uses to identify emotional states of the users. Some of the challenges this approach has faced are stereotypical and demographic bias, this is because the generalizations these systems employ are based on the characteristics present in the dataset it was programmed with. This requires training the AI with larger datasets for it to learn to make better generalizations and not make decisions using its learned biases based on stereotypes.[30]

An important challenge faced when employing facial recognition software is the identification of certain traits like gender identity, sexual orientation, attractiveness (facial symmetry), age and racial traits with said technology. AI technology that has the capacity to evaluate these traits need to be limited with how they're programmed to use that information. Not doing so could lead to the possibility of it being used as selection criteria unless audited and regulated. People can be subjected to unintentional discrimination by proxy (by belonging to a protected group) if AI takes into consideration certain traits as selection criteria. Authors have proposed a multi-agent system architecture for HR auditing where there are auditing checks involving a recruiter, an external auditor and (if necessary) a government/authority where the company is or origin of the candidate.[31] Other authors have suggested having a human evaluator overseeing these decision-making processes that AI's enact. Removing the human evaluator and having the AI system operate independently opens the risks to biases and discrimination.[32]

Gender bias affects algorithmic recruiters more when compared to human recruiters. A study shows that human recruiters are perceived to be commit more errors during evaluations and focus more on personal characteristics of the candidate compared to algorithmic recruiters which focus more on task performances. The article explored the perception of the bias that both recruiters have, recognizing its existence among the two parties. The study finds that human recruiters are perceived to be biased favoring males with worse task performance. The authors recognize that with the increased use of algorithmic evaluations in recruitments, it's a practice worth studying so policymakers focus their attention of the subject matter and find ways to protect worker's wellbeing.[33] While algorithmic decisions are perceived as lees fair in comparison to human made decisions, some authors say HR algorithms may remove human bias from decision-making, but this just substitutes one bias for another (far less explored bias). The authors[34] argue

[28] Babazadeh, Natasha, Angela Washington, and Tiffany Brown. "Civil Rights in the Digital Age: The Intersection of Artificial Intelligence, Employment Decisions, and Protecting Civil Rights." *Dep't of Just. J. Fed. L. & Prac.* 70 (2022): 57.

[29] Moss, Haley. "Screened Out Onscreen: Disability Discrimination, Hiring Bias, and Artificial Intelligence." *Denv. L. Rev.* 98 (2020): 775.

[30] Dominguez-Catena, Iris, Daniel Paternain, and Mikel Galar. "Gender Stereotyping Impact in Facial Expression Recognition." arXiv preprint arXiv:2210.05332 (2022).

[31] Fernández-Martínez, Carmen, and Alberto Fernández. "AI and recruiting software: Ethical and legal implications." *Paladyn, Journal of Behavioral Robotics* 11, no. 1 (2020): 199-216.

[32] Friedman, G., and Thomas McCarthy., *supra* note 7.

[33] Fumagalli, Elena, Sarah Rezaei, and Anna Salomons. "OK computer: Worker perceptions of algorithmic recruitment." *Research Policy* 51, no. 2 (2022): 104420.

[34] *Id.*

that these algorithms do not consider qualitative information necessary to make correct decisions and reduce the process to specific criteria that are not considered enough. This is because AI systems consider mainly quantitative information that is easily processed by reducing information to numbers, a different analysis approach must be considered when evaluating qualitative information.[35]

As an attempt to remove bias from the process, authors recommend using the Implicit Association Test (IAT). The IAT is an instrument used to measure the test taker's unconscious biases, which can then be removed with the use of AI algorithms. AI systems can present managers with candidates that may have been removed from the process because of said bias. It is necessary to have the hiring criteria evaluated to avoid disparate impact based on race or other protected groups. If left unattended not removed from the algorithm, these AI systems could further institutionalize this bias.[36]

Regarding whom is liable in disparate treatment cases with AI recruitment tool, authors have presented the argument that these systems don't have the ability to possess intention when enacting the recruitment tasks. Therefore, their actions don't fall under the terms used for disparate treatment cases and current labor law.[37]

Risk of Unemployment

Another challenge that comes when implementing these systems is the risk of increasing unemployment rates. Authors recognize the possibility of an increase in unemployment due to the constant automation of processes with the use of AI and algorithms.[38] The idea that AI systems will replace humans is related to the automatization of multiple work processes and reducing the time in which they are performed, thus improving productivity and efficiency. Form a business perspective, this makes investing in AI more attractive when compared to the human factor.[39]

Workplaces that have automized their processes can reduce the time invested in tasks and can reduce costs of production by reducing their workforce.[40] This is believed to eventually lead to massive employment rates and lower the possibility of having full time jobs since a person's job would be reduced to part-time status with the increased productivity that comes with these new technologies.[41] The more processes and tasks that become automated, the less there will be left for human workers to carry out. Authors indicate this might be a grim future but suggests that is ideal to begin identifying current jobs that need human skills and the type of expertise that needs to be preserved even when there are machines that can carry these functions out.

Adopting artificial intelligence in workplaces can affect job structure, impact organizational policies, and increase inequality in the job market. This will also affect the demand of certain skills, making some skills less prevalent among future job candidates.[42] Other implications of automation that will become a potential harm to workers is

[35] Newman, David T., Nathanael J. Fast, and Derek J. Harmon. "When eliminating bias isn't fair: Algorithmic reductionism and procedural justice in human resource decisions." *Organizational Behavior and Human Decision Processes* 160 (2020): 149-167.

[36] Bora, Kasturi, Ms Upasana Borah, and N. E. F. Student. "A study on the application of artificial intelligence in human resource management." *Journal of Interdisciplinary Cycle Research* 12, no. 7 (2020): 434-450.

[37] Sullivan, Charles A., s*upra* note 25.

[38] Beng, James Lau Oon. "Future of Work in an Age of Automation, Artificial Intelligence and Technology." *Int'l. In-House Counsel J.* 13 (2020): 1.

[39] Jarrahi, M. H. (2018)., *supra* note 14.

[40] Al-Alawi, Adel Ismail, Misbah Naureen, Ebtesam Ismaeel AlAlawi, and Ahmed Abdulla Naser Al-Hadad, *supra* note 24.

[41] Beng, James Lau Oon., *supra* note 46.

[42] Wisskirchen, Gerlind, Blandine Thibault Biacabe, Ulrich Bormann, Annemarie Muntz, Gunda Niehaus, Guillermo Jiménez Soler, and Beatrice von Brauchitsch., *supra* note 4.

work intensification, which has been evidenced to increase injury rates in Amazon warehouses. Other examples are de-skilling where workers are limited to repetitive tasks and job loss from increased automation.[43]

The implications of using automation in the workplace will be related to job displacement, AI will become responsible for taking over jobs that people are able to do but, in less time, and more accurate.[44] Some authors propose that AI systems should act as assistants and consultant to HR managers. The study concludes that the field of human resources has integrated AI systems and has seen a positive impact. They recognize the possibility of having AI technology replace human workers by automation in the future, however, they conclude that the human factor will always be necessary and cannot be fully replaced.[45]

Infringement of Privacy Rights

Another issue that comes with implementing artificial intelligence and algorithms in workplaces is related to the infringement of privacy rights. One of the biggest concerns for implementing AI systems are the challenges it poses to data privacy and discrimination since it will have access to personal information and make recruitment decisions based on its potential bias.[46] The infringement on worker's privacy rights and the need for healthy work-life balance have become major concerns while using new unregulated technology. Whereas AI systems don't overtly or implicitly incur in a degree of intrusion to the employee's private life by monitoring their activity, they need to be programmed to do so.[47] This sheds light on the importance of how these systems are programmed to engage with workers and what type of information it should be collecting.

These monitoring practices have been justified with the rise of telework and digital workspaces due to the COVID-19 pandemic. These remote work settings hold challenges related to workers' work-balance and privacy rights. While there exists a justification to monitoring the workforce, a certain degree of supervision could borderline infringing workers' rights. In the US, the expectation of privacy is limited to the rationale that the equipment used is owned by the employer, therefore, there should be no reasonable privacy expected.[48] However, instances of having work computers having their cameras and microphones on or constantly recording while employees are not on work hours has been noted as a risk to privacy and violating work-life balance.

Employee's privacy should be protected when they participate in workplaces that implement algorithm management. Authors argue that along the data life cycle, from collection to erasure, there are instances where employee privacy issues can occur. They note this can occur during four different phases: data collection for lack of transparency; lack of informed consent about data analysis; data use for decision making; data erasure. Researchers present a process-oriented model for Privacy Due diligence to ensure employee privacy and grant the employee autonomy over

[43] Bernhardt, Annette, Lisa Kresge, and Reem Suleiman, *supra* note 26.

[44] De Stefano, Valerio. "'Negotiating the algorithm': Automation, artificial intelligence and labour protection." *Artificial Intelligence and Labour Protection (May 16, 2018). Comparative Labor Law & Policy Journal* 41, no. 1 (2019).

[45] Tewari, Isha, and Mohit Pant. "Artificial intelligence reshaping human resource management: A review." In *2020 IEEE International Conference on Advent Trends in Multidisciplinary Research and Innovation (ICATMRI)*, pp. 1-4. IEEE, 2020.

[46]Ore, Olajide, and Martin Sposato. "Opportunities and risks of artificial intelligence in recruitment and selection." *International Journal of Organizational Analysis* (2021).

[47] Carby-Hall, Jo, and Lourdes Mella Méndez, eds., *supra* note 9.

[48] Aloisi, Antonio, and Valerio De Stefano. "Essential jobs, remote work and digital surveillance: Addressing the COVID-19 pandemic panopticon." *International Labour Review* 161, no. 2 (2022): 289-314.

the information the employer holds about them. They suggest that this model could help identify privacy gaps that could help create better regulations and technical assessments.[49]

Liability Risk of Implementing AI

The electronic personality is a reference to how AI's and robots have human like characteristics but lack consciousness and do not act with intentions of their own. However, they mention how robots should be at the same level of human beings in relation to the recognition of rights and obligations. Giving robots judicial personality would have great implications in the sense of liability and obligations that will be attributed to programmers and stakeholders alike.[50]

Implementation challenges for AI are centered around the lack of transparency on how organizations make decisions with AI systems. Regarding ethical and legal issues, the candidates need to be informed that their data is being collected and decision-making will incorporate the AI system. This allows for the candidates to make an informed decision when undergoing an AI assisted process. It is also their right to know how they will be evaluated during the recruitment process. The focus of these issues lies in the ethics, accountability, trust, fairness, and legal implications of using these systems at workplaces.

Authors note that advancing technologies will have increased legal implications related to termination, liabilities caused by bots and privacy issues with personal information usage.[51] All of these uses only call for policymakers to take this challenge and focus on guaranteeing a just due process that safeguards workers and allows companies to use these new technologies for their benefit.

Regulation & Policy Response to AI in the workplace

Currently there exists a limited number of regulations that oversee how these technologies can be implemented and to what extend they can be carried out by the employer without incurring in violating worker's rights. Companies that support these technological advances should ensure transparency, social sustainability, and compliance with regulation practices.[52] Authors recognize a lack of regulation that leave workers open to having their rights infringed by these AI supported practices. The increasing use of algorithms in organizational practices make it difficult for policymakers to foresee how these technologies will have adverse effects on workers[53] Worker's technology rights exist in a regulatory vacuum, there is not much legislation that regulates employers' AI supported practices.[54] There is also exists a lack of regulation and auditing practices for the analyses done for these HR processes.[55] This lack of regulation could eventually lead to suppression of right to organize, loss of privacy, contingent work, loss of autonomy, dignity and lower wages.

[49] Ebert, Isabel, Isabelle Wildhaber, and Jeremias Adams-Prassl. "Big Data in the workplace: Privacy Due Diligence as a human rights-based approach to employee privacy protection." Big Data & Society 8, no. 1 (2021): 20539517211013051.

[50] De Stefano, Valerio., *supra* note 52.

[51] Budhwar, Pawan, Ashish Malik, MT Thedushika De Silva, and Praveena Thevisuthan. "Artificial intelligence–challenges and opportunities for international HRM: a review and research agenda." *The International Journal of Human Resource Management* 33, no. 6 (2022): 1065-1097.

[52] De Stefano, Valerio., *supra* note 52.

[53] Bernhardt, Annette, Lisa Kresge, and Reem Suleiman, *supra* note 26.

[54] *Id.*

[55] Fernández-Martínez, Carmen, and Alberto Fernández., *supra* note 39.

For example, The General Data Protection Regulation (GDPR)[56] is a legislation proposed by the European Commission. It regulates the use of these systems but has proven to be ambiguous in its wording. The General Data Protection Regulation (GDPR) grants data subjects Access and right to information when their data is used for profiling-based decision making. The GDPR also grants subjects the right to not be subject to a decision-making process that is only based on profiling (ex. Recruitment with no human intervention). Other regulatory response from the European Union and how the legislation has failed to delimit and define certain AI processes such as profiling.

This legislation would require a human recruiter to make decisions with the candidates that chose to exercise this right.[57] It also presents exceptions to these, most importantly: these rules don't apply when the process is necessary for entering into or executing a contract. The Proposal for Regulation on Artificial Intelligence published by the European Commission pretends to guarantee consistency among EU legislation that applies to sectors where AI systems are being used (including workplaces). The article focuses on EU non-discrimination law and occupational health and safety. Workplaces as providers of AI systems can face different obligations based on different risk levels. AI systems are considered high risk when they are used for recruitment or making decision on promotion and terminations. AI systems that effect personal information should also be considered high risk, unless it's part of regular workers' performance evaluations. Users must be informed of risks that result from AI systems intended use and purpose, including "foreseeable misuse which may lead to risks to health, safety or fundamental rights". providers need to guarantee full transparency regarding algorithm process information; whether the AI does not repeat bias or discrimination; leaves space for human workers to adjust functioning.[58] An interpretation of EU law could consider assessing individuals based on characteristics like age or sex can be considered profiling, being too broad for what it intends to be. There is a need for complementary regulation that is specific to employments in the European Union and at a national level.[59]

The European Commision's Artificial Intelligence Act was designed to ensure that AI systems comply with existing laws related to fundamental rights and values. Fairness as the absence of prejudice towards an individual or a group is a value that should be aspired by these systems and the impact they have on workers and the workplace. Legislation like this is necessary to set safeguards to prevent unfairness and discrimination. Deeming that technological innovation should lead to positive social impact that benefit society, some authors believe that AI can only improve as we develop a better understanding of how it functions. Even though algorithms remove the human factor from the process, bias is still present in these systems[60]

The European Union proposed legal framework for AI use in workplaces. The regulation has a risk-based approach and may become a barrier to innovation since it restricts its use and application. The legislation is not clear about the mechanisms that will be used on the regulator's side. The risk-based approach evaluates how much of a threat to safety and livelihood does the system pose to the worker (limited, minimal, and high risk). Limited risk systems mainly require a transparency obligation where users are notified of their interaction with the machine, allowing them to make an informed decision during the interaction. Minimal risk systems do not require the transparency provision since these do not pose a threat to safety. Meanwhile, high risk systems pose a risk to safety of workers and delimit guidelines based on their function. The legislation is not clear on whether high risk systems incur in violation

[56] Regulation, General Data Protection. "General data protection regulation (GDPR)." *Intersoft Consulting, Accessed in October* 24, no. 1 (2018).

[57] Parviainen, Henni. "Can algorithmic recruitment systems lawfully utilise automated decision-making in the EU?." *European Labour Law Journal* 13, no. 2 (2022): 225-248.

[58] Cefaliello, Aude, and Miriam Kullmann. "Offering false security: How the draft artificial intelligence act undermines fundamental workers rights." *European Labour Law Journal* (2022): 20319525221114474.

[59] Otto, Marta. "Workforce Analytics v Fundamental Rights Protection in the EU in the Age of Big Data." *Comp. Lab. L. & Pol'y J.* 40 (2018): 389.

[60] Delecraz, Sebastien, Loukman Eltarr, Martin Becuwe, Henri Bouxin, Nicolas Boutin, and Olivier Oullier. "Responsible Artificial Intelligence in Human Resources Technology: An innovative inclusive and fair by design matching algorithm for job recruitment purposes." *Journal of Responsible Technology* 11 (2022): 100041.

of civil rights, participation, access, and due process. While unacceptable risk systems pose direct threat to safety and are banned. Examples of these banned systems are social scoring systems, manipulation, and remote biometrics (logging in with fingerprints).[61]

An example of legislation from the United States that regulates the use of work technology is California's Workplace Technology Accountability act. This legislation regulates the use of electronic monitoring and automated decision-making systems. The act limits the use of AI based on the location, time of day and the activities it monitors, requiring evidence for monitoring based on what is considered as necessary job functions and therefore justify the use of the AI supported system. It also grants workers the right to know, review and correct the information their employer has about them. This legislation has the purpose of ensuring worker's right to privacy and maintaining a healthy work-life balance, essential for worker's health, particularly remote workers. It also serves as guidelines to enforcement and compliance by the relevant state departments.[62]

The New York Mandatory Bias Audit Legislation, which has mandated bias audits for AI supported employment decisions. The legislation only applies to workplaces in New York, but it is not clear if it applies to New York based workplaces with out of state candidates. It does not explicitly define what bias audit is or how it should be done, the authors note the lack of clarification can lead to the use of different metrics and will prevent standardization of this evaluation. This legislation is a step in the right direction and is necessary for eradicating bias from these systems but the lack of clarity and examples on how to audit and document the process hinders workplaces compliance.[63]

Conclusion

Artificial intelligence in human resource practice is creating advanced solutions for practical challenges faced daily by HR managers. One of the most important contributions AI brings to workplaces is improving the quality of the recruitment process by identifying the best candidates for the desired role. Within the workplace, AI systems have been used to screen candidates, personality and skill-based evaluations, and performance evaluations and other employer wellness programs. Algorithms are responsible for the automation of repetitive, low value add tasks, leading to increase time to focus on strategic work for HR managers[64] This in turn, increases productivity, reduces costs, and improves HR services by eliminating the possibility of human error and biases. AI's are used for recruitment by employing speech and face recognition, machine learning and problem solving.[65]

Our social context has forced society to a work from home economy, raising the distance between human-to-human interaction, leading to an increase in human to machine interactions and making them more common. This has created opportunities for artificial intelligence to benefit the company but also, it will create potential risk to violating Title VII of the Civil Rights Act of 1964, ADEA (Age Discrimination in Employment Act), among other pieces of legislation that safeguard individual rights. To avoid this type of liability, the authors recommend monitoring data, having human workers oversee the AI enhanced process, evaluating where data comes from, setting target goals, auditing and validation of the system and data sets.[66]

[61] Kazim, Emre, Adriano Soares Koshiyama, Airlie Hilliard, and Roseline Polle. "Systematizing audit in algorithmic recruitment." *Journal of Intelligence* 9, no. 3 (2021): 46.

[62] Hilliard, Airlie, Emre Kazim, Tom Kemp, and Kelvin Bageire. "Overview and commentary of the California Workplace Technology Accountability Act." *International Review of Law, Computers & Technology* (2022): 1-19.

[63] Id.

[64] Bora, Kasturi, Ms Upasana Borah, and N. E. F. Student., *supra* note 44.

[65] Oswal, Nidhi, Majdi Khaleeli, and Ayman Alarmoti. "Recruitment in the Era of Industry 4.0: use of Artificial Intelligence in Recruitment and its impact." PalArch's Journal of Archaeology of Egypt/Egyptology 17, no. 8 (2020): 39-47.

[66] Mainka, Spencer M., *supra* note 33.

Current legal framework is limited and does not consider these implications. With ongoing developments, regulations will become further obsolete to the reality that is lived in workplaces. Keeping humans in the decision-making loop is one of the most notable suggestions that many authors propose. This is to ensure safeguarding human rights through human agency and avoiding giving complete responsibility to an automated system. Maintaining the human factor in this process works as a safety net to keep AI and automated systems from possible adverse discrimination and violating human rights[67] (Wagner, B., 2019) This is recommended to strengthened regulations on automated systems to facilitate worker's claims in liability cases and privacy issues. Having a human agent in the process will help with current legislation given that AI systems cannot be held liable themselves.

While adopting new technologies enhanced with artificial intelligence has many benefits and has the capacity to transform and improve the way we live and work, it is necessary to study how these systems exist to inform policymakers on the state of things and bring light on injustices that come from the unfair use of these technologies. With a new digital working environment, many practices will continue to evolve and with these, new legal challenges will rise.

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