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THE FUTURE OF ARTIFICIAL INTELLIGENCE AT WORK: A REVIEW ON EFFECTS OF DECISION AUTOMATION AND AUGMENTATION ON WORKERS TARGETED BY ALGORITHMS AND THIRD-PARTY OBSERVERS

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ABSTRACT

The main purpose of this paper is to review the future of artificial intelligence at work especially how it will affect decision automation and augmentation on workers. Automation and augmentation of decision-making processes in the workplace are becoming more common because of advancements in artificial intelligence. In addition to transforming our homes, smart technologies are also making inroads into a wide range of businesses and causing havoc in the workplace [1]. Although AI can boost productivity, efficiency, and accuracy throughout a company, is this always a good thing for the organization? There is a widespread belief that the advent of AI will result in the replacement of human employees by computers and robots and that this advancement in technology represents a danger rather than an opportunity to improve ourselves. Leaders must understand how AI will affect their workforces and then prepare them by upskilling certain individuals to perform current occupations, but with AI, and retraining and hiring others for the new positions that AI will require. Schools and parents will have to instill in their children a love of STEM as well as a sense of wonder and curiosity for learning throughout their lives [1].

Keywords: Artificial intelligence, work, recruitment, selection, automation, algorithms.

I. INTRODUCTION

Automation has aided human labor for decades. Production and aviation have always been the main beneficiaries of automation or duties that supported them. AI and machine learning are now widely used to automate jobs that were previously performed by humans. As a result, people are assisted in many aspects of daily life by automation. Among other things, fully automated data processing and advanced analytics systems assist judges in courts of law, doctors with diagnoses, and executives with high-risk management responsibilities [1]. Current practical advancements and contemporary research in the field of human resource management hint at a future in which managers will interact with automated systems to complete duties as diverse as planning, employee recruitment, and sustainability dimension.

In the past, management automation research has mostly dealt with efficiency and effectiveness issues. Automated procedures may aid in the evaluation of motivating letters demonstrated the feasibility of using automated systems to review the interview process. A further study line focuses on whether and how individuals utilize automated systems for decision assistance and examines whether or not people dislike or value the advice given by these systems [2].

However, automation's ramifications do not end with consumption or efficiency/effectiveness concerns. The introduction of automation in traditional domains has been found to have an impact on job duties, motivation, and overall well-being at work. We believe that managerial work automation can have the same impact [2]. Automation has already had a significant impact on recruiting managers' ability to do their jobs, particularly in people selection (as a distinct management responsibility). As an example, they may have systems that collect the application information and provide candidate ratings based on automated screening of resumes or job interviews. On the one hand, productivity might grow as a result, giving you more time to focus on other projects. Recruiting managers' processing of information during recruitment is affected by automated

technologies, which, for example, lessen the requirement to analyze raw application data, and they may think that their direct impact on the recruitment process is weakened. There may be consequences for how tasks are viewed in terms of autonomy and responsibility, which might impair motivation and job satisfaction [2].
The adoption of artificial intelligence (AI) and machine learning (ML) to assist administrative activities and functions has grown in popularity. The adoption of automation in management, in contrast to conventional applications (e.g., manufacturing or aviation), is not well understood. This research analyzes the impact of diverse forms of automated decision support systems in staff recruitment as a specialized managerial function on decision task performance, duration to make a choice, attitudes to work (e.g., pleasure), and self-efficacy in people choice within a work design framework [3,4].

II. PROBLEM STATEMENT

The main problem that this paper will address is to explore the future of artificial intelligence at work especially how it will affect decision automation and augmentation on workers. For a long time, engineers raised the fear that automation and artificial intelligence (AI) would be a disaster for the labor market [5,6]. After then, there was a round of clarifications and guarantees. There is a growing consensus that automation will neither bring doomsday or utopia but instead will offer both advantages and stress to workers. Because of this, discussions on the "future of work" are often imprecise and abstract. The fear of AI-powered automation is overstated for people, companies, and nations with the necessary capabilities. Its benefit to the economy is enormous.

III. LITERATURE REVIEW

A. Automating and assisting in the selection of new employees

Personnel selection is one area where automated assistance systems for high-level cognitive activities are developing as a research and practice subject. Using such a system, hiring managers may be provided with rankings of prospects to help them in the recruiting process [7]. Other research has looked at the use of computer-assisted interviewing. Some researchers have posited that interviewing may be automated so that candidates can be screened and a shortlist of the most qualified candidates can be presented to prospective employees [8].

Fig i: Benefits of AI in selection and recruitment of employees

Personnel selection is becoming more complicated, which may explain the growing usage of such methods. Hiring managers collect and combine a wide range of information from a potentially huge number of candidates (– for example, outcomes from intelligence tests, interviews). As well as screening and hiring the most qualified candidates, they must also take into account some corporate objectives (such as cost and

diversity) while also complying with regulatory rules (e.g., regarding adverse impact) [8]. There is optimism that automated decision support systems may assist acquire and combining information for a large number of candidates, making selection processes more efficient.

To have a better grasp of automation systems for employee recruitment, it is important to look at studies on automation as well as works on decision support systems [9,10]. Information action is when systems offer relevant information to the strategic decision after focusing on information retrieval and decision-making components of automated processes. Automated information collecting, filtering and analysis, decision suggestions, and action execution are four major categories of automated functions. The level of automation will rise as more of these tasks are integrated into systems. It's possible that acquiring information will include automated transcription of videos. It's possible that highlighting terms in these transcripts will help with the filtering and analysis of data. Classification (e.g., separating acceptable from non-suitable candidates) or prediction tasks may be fulfilled by systems that give judgment suggestions learned on past data. Once these activities have produced results, they may be shown to humans to help them make decisions [10]. Technological solutions that acquire and analyze data, as well as make judgments and suggestions based on it, are exactly what the present article is talking about. As a result, they are useful to recruitment agencies in a wide variety of tasks (such as collecting and analyzing information, approving or rejecting applicants), and their findings may serve as an extra (or additional) information source for decision-makers.

Machine learning and artificial intelligence have given rise to automated procedures that may be thought of as increasingly complicated and sophisticated ways of mechanically obtaining or combining data [11,12]. Some of the innovative ways, in particular, employ sensors (e.g., webcams, microphones) to collect information from the respondents, natural language processing to collect the information from application replies, and machine learning algorithms to assess applicant's ability (how well this innovative type of mechanical information collecting and combining relates to classic mechanical and clinical methodologies on validity is an outstanding topic). Insights into the possible consequences of applying modern information analysis and decision support automation may be gained via research into a mechanical combination of information (MCI) [13]. Compared to clinical information collecting and combining, it has been demonstrated that mechanical collection and combination (– for example, combining utilizing ordinary least squares regression) may increase decision quality (for example, intuition-based combination of information). However, this research indicated that consumers are wary of the use of automated means of acquiring and integrating data. Using automated systems in occupations may impact people's behavior and attitudes to their work, according to some studies, who label this resistance to mechanically integrated information as "algorithm aversion." [14]

B. Performance and efficiency impact of information processing and decision-support system

Automated data processing and decision-making systems for staff selection may be implemented in a variety of ways. It is critical to consider the timing of when to present hiring managers with the results of an automated system, in addition to the particular responsibilities assigned to an automated process (– for example, information collection, evaluation of information). Decision support systems may be incorporated at prescribed intervals: before a human decision-maker examines the existing knowledge (support-before-processing technologies) and then after the decision-maker uses the information. Automation of people selection systems, for example, might provide automated assistance before processing (such as a list of automation selection and recruitment solutions and services) [145]. generally, the system evaluates data about the potential candidate and delivers. Hiring managers obtain these results, as well as more specifics on the applicants. As a result, they have access to the automated system's output and may check into extra application data. To put it another way, decision-makers have the option of using the system's suggestion as to their only

source of information, or they may combine it with other candidate data to arrive at a judgment [15]. When properly validated, these systems have the potential to boost productivity while also serving as a source of mechanically integrated information that helps with decision quality. Potential drawbacks include the possibility of anchoring effects, which limit hiring supervisors' focus to the highest-scoring candidates. Research from traditional automation domains also shows that individuals initially regard such systems as extremely dependable, which might cause decision-makers to adopt suggestions without evaluating further, possibly contradicting information and without properly pondering on the eligibility of applicants (i.e. they may overtrust the system). Furthermore, individuals may be "limited to the position of receiver of the machine's answer" when using systems that place assistance before execution. While decision-makers believe they have fewer opportunities to demonstrate their competence when utilizing these technologies, they may sense a loss of reputation [15].

Fig ii: Strategic areas where AI impacts recruiting outcomes

Support-after-processing systems, rather than support-before-processing systems, developed as a result of the latter problems. In addition, they'd handle data processing and assess potential hires. These systems, on the other hand, provide decision-makers with extra mechanically integrated information that they may employ after processing the given data. Aside from providing feedback, these algorithms may also critique human judgments. They don't seek to prove human decision-making is accurate; instead, these technologies serve as a way to pause and reflect on a previous choice. To present, medical research and practice have provided the bulk of the research on these systems [16]. For example, a doctor might use available data to make a cancer diagnosis first (or a therapy plan). The algorithms might utilize this assessment as input and either offer the doctor the diagnosis they would have given or advice about what aspect of a diagnostic look contradictory with the information at hand. Given that concerns with support-before-processing systems (like credibility loss) have been linked to management duties, the usage of support-after-processing systems may not be limited to medical decision-making. They may, in theory, promote more complete information processing and the development of sound decision-making arguments. For example, in personnel selection, such algorithms may offset human heuristics by alerting decision-makers to individuals that were either ignored or rejected too quickly [17]. Another benefit of these systems is that they serve as a mechanical source of information combination in addition to support-before-processing systems, which may improve the quality of decisions. Support-after-processing systems, in contrast to support-before-processing systems, don't have any early anchoring problems.

Because decision-makers still have to evaluate information that was accessible before the support system was implemented, it doesn't make the decision-making process any more efficient. Instead, by encouraging decision-makers to explore extra information and alternate views on the information they already have, they may further lengthen the time it takes to conclude. Furthermore, the possibility of people being too trusting cannot be discounted. While automated systems might give recommendations, decision-makers would have

examined and blended numerous information sources rather than merely depending on them. There's a chance that this will help them decide whether or not to heed the system's advice.

C. Impacts on knowledge and task characteristics

According to a study on algorithm aversion, decision-makers may be influenced in many ways by adopting automated assistance systems. There are a variety of reasons decision-makers may feel diminished in autonomy while using decision support systems. These include expectations of systems not being realized, and specific design choices within these systems (such as how and when to offer a suggestion) not matching human information processing. In other words, employing these technologies for managerial work may have an impact on expertise and job requirements in some situations (such as during information processing and decision-making assignments). The integrated work design framework, in particular, suggests many knowledge and task features that have an impact on critical attitudes, behavioral, intellectual, and well-being objectives. Knowledge qualities are the challenges that individuals face when completing activities (such as cognitive demands). In the context of a job, task characteristics refer to the types of tasks that must be completed and the methods used to do them [17].

Information processing and autonomy, role clarity, and input from the work are particularly significant in connection to decision support systems. How much information work needs is reflected in the quantity of information processing required to do it. When it comes to autonomy, it refers to how autonomous workers are in completing their work and making decisions about how to approach it. Identity of a task specifies whether or not tasks may be completed in their whole rather than merely focusing on certain sections of them [17,18]The extent to which workers obtain information regarding their work performance from features of the job itself is characterized as evaluation from the workplace. Psychological states such as experienced meaningfulness felt responsibility for work results, and job satisfaction and performance are all affected by differences in these traits.

There is a possibility that the methods of information processing and decision support used in people selection have an impact on these knowledge and job attributes. Before hiring managers process candidate data, support-before-processing systems provide their evaluations of potential employees This might potentially lower the amount of data processing required (e.g., integrate information, compare applicants). With regard to the identification of the work, hiring managers may believe that they haven't completed the selection process. The system already indicates which candidates to prefer, so they may experience a loss of autonomy. Thus, hiring managers are more likely to favor selection methods where their expertise can be demonstrated, as well as those that allow for greater autonomy (for example, unstructured interviewing as opposed to structured interviews; using clinical as opposed to mechanical combination of information).

However, systems that provide help after processing may need more information processing, provide a greater sense of work identity, and provide a greater degree of autonomy. A key benefit of these tools is that they provide hiring managers the freedom to do independent analyses and integrations of data before making a final choice regarding candidates. Additionally, hiring managers may rely on suggestions from systems that provide feedback after a job has been completed. Managers may assume that an automated system is operating as planned if they have no experience with it. As a result, if employees trust that an automated system can accomplish this, they may compare their judgments to the suggestions of the system to obtain a notion of their performance. This is because the automated selection and recruitment systems are designed to analyze applicants' job fit. These theories argue for how differences in knowledge and job characteristics impact five key workplace psychological factors: pleasure, boredom, contentment with decision-making, felt responsibility, and self-efficacy.

D. Impacts on satisfaction with the decision

Knowledge professionals (such as hiring managers) spend a significant portion of their time each day digesting information and making decisions. Overall job satisfaction is likely to be influenced by how happy employees are with their choices. When the effects and quality of a choice aren't immediately obvious, satisfaction with decisions is critical. When it comes to hiring new employees, the quality of the choice is directly tied to how well the new hire will perform in the future. The long-term implications of choices can only be seen by persons who are persuaded of their conclusion and happy with the decision-making process. People may become more persuaded and happier with their conclusion if they analyze information independently. Also, if individuals think they made a good choice (i.e., if they get positive performance feedback), this may boost their satisfaction.

E. Effects on belief in one's abilities

In terms of self-efficacy, it's the idea that one's talents and capacities will allow one to do well on a certain activity. Job performance and job happiness are directly linked to one's level of self-efficacy. Task-specific or generic self-efficacy are both possible. Unlike general self-efficacy, which can be applied to many different circumstances, particular self-efficacy is very situation-dependent. While overall self-efficacy refers to participants' belief in their abilities, particular self-efficacy refers to how well participants believe they can do the selection task at hand [18]. Completing a task on one's own should increase one's overall and particular self-efficacy. These considerations should be increasingly obvious when taking on more difficult assignments (e.g., tasks that afford more information processing). Self-efficacy may be boosted by gaining confirmation of excellent work. To use terms from work design research, only those who used a support-after-processing system or received no help felt they completed a difficult cognitive task on their own in the no-support group. The system's information might be interpreted as a measure of how well participants in the support-after-processing condition performed their tasks. All of this has the potential to improve both a person's overall and particular self-efficacy [18].

IV. FUTURE IN THE U.S

The future on the impacts of artificial intelligence on workers in the U.S will grow as more companies look to make their operations faster and increase productivity. According to USC specialists, AI's self-learning and automated skills offer more systematic and cost-effective data protection, protecting individuals from terrorism and even small-scale identity theft. Self-driving automobiles are where AI has the most potential to change the world in the near future. AI drivers can't pay attention to the radio or put on mascara while driving. Autonomous vehicles have already arrived, thanks to Google, but they will be commonplace by 2030. Boeing is developing an autonomous airliner and has previously used driverless railways in European cities (pilots are still required to put info into the system). Doctors and hospitals will be able to better evaluate data thanks to AI algorithms, which will allow them to tailor their patient treatment to the individual's genes, surroundings, and lifestyle [18]. Personalized medicine will be ushered in by artificial intelligence, which will do anything from diagnosing brain tumors to determining which cancer therapy is best for a certain patient.

V. ECONOMIC BENEFITS IN THE UNITED STATES

There are many economic benefits of artificial intelligence at work in the United States. Using artificial intelligence (AI), companies may boost productivity by focusing on certain job functions and increasing the value of "human abilities" such as creativity, problem-solving, and numerical skills. Even though artificial intelligence will boost economic development, the benefits will not be spread equally. Artificial intelligence (AI) will be beneficial to certain businesses while posing a danger to others. Employment in high-growth

professions like healthcare, where highly experienced practitioners cannot be replaced by automation, will be supplemented while jobs in businesses that depend on conventional procedures will be replaced [18,19]. Authorities must seek to close the educational achievement gap between rural and urban individuals and provide financial assistance to employees who must quit their jobs to obtain new skills. As with healthcare, other "high-value" service sectors are expected to have modest levels of automation (34%), including professional, scientific, and technical services [19]. Because of the advantages, AI offers to highly complicated and specialized professions, it is expected that the percentage of AI-related occupations in the economy will grow, resulting in more secure and well-paying work for Americans. Assigning computers to do repetitive work and people to complicated jobs will boost productivity and spur economic development. AI-related innovations, according to one expert, would boost North America's GDP by $3.7 trillion by 2030. Rural areas will bear the brunt of the economic advantages, but the rewards will not be spread equally.

VI. CONCLUSION

This paper explored how artificial intelligence will have an impact on future work roles and the recruitment of employees. This research's findings show the influence AI will have on the nature of work and what organizations can do to prepare their employees for a digital future. Managerial positions are being displaced by artificially intelligent and machine learning-based technologies. The study's purpose was to see how various types of computer-aided information processing and decision support systems alter managers' attitudes to performing people selection as a distinct administrative function. Automatic decision support systems alter organizational structures and job responsibilities. It's important for companies planning to deploy these technologies to think about the impact on their personnel. Support-before-processing systems may improve efficiency in people selection, but they can also have anchoring effects and cause hurried judgments. As an alternative, support-after-processing systems can boost job satisfaction and self-efficacy by increasing work pleasure and happiness with choices. This might lead to happier employees. The effectiveness of such systems depends greatly on the system's dependability, which is likely to be less than flawless for management decision support systems.

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