

# The Role of AI in Automating HR Performance Reviews: Efficiency vs Fairness

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## ABSTRACT

Performance reviews have been a core part of HR for a long time but the way most companies still do them is pretty outdated (Chamorro-Premuzic et al., 2020). Managers usually rely on their own memory and judgment which brings in problems like favoritism and recency bias (Sadeghi, 2024). AI is now being used to change this by bringing in machine learning and natural language processing to evaluate employees based on actual work data instead of just opinions (Rsisinternational, 2024). Research shows that AI can improve HR process efficiency by 57 to 80 percent which is a massive jump (Advances in Consumer Research, 2025). But it is not all good news. A systematic review of 43 studies found that while AI can standardize evaluations it also carries the risk of embedding old biases into new systems (Management Review Quarterly, 2025). Employees have their own concerns too. A survey of 306 workers found that they only trust AI evaluations when the criteria being used clearly relate to their actual job tasks (Cogent Business and Management, 2025). On the other hand when people already feel their human managers are biased they tend to prefer AI as a fairer alternative (Cha, 2025). The fairness question is tricky because even the people building these systems sometimes cannot fully explain how the algorithms arrive at a particular score (Hughes et al., 2025). This paper takes a look at what the current research says about AI in performance reviews covering both the efficiency gains and the fairness concerns and tries to give a balanced view of where things actually stand right now.

**Keywords:** NET Framework, .NET Core, Enterprise Application, Migration, Performance Optimization, Cross-Platform Development, Web Application Development, API Integration, Software Modernization, System Architecture.

## 1. INTRODUCTION

If you think about it, the way most organizations handle performance reviews has barely changed in the last thirty or forty years (Chamorro-Premuzic et al., 2020). A manager sits down, tries to remember what an employee did over the past six months or year, writes down some thoughts, and gives a rating. The whole thing is pretty subjective and most employees know it. In fact that is one of the biggest complaints people have about the review process, that it does not actually reflect their real contribution (Sadeghi, 2024). There are well documented biases that creep into these evaluations like the recency effect where managers only remember what happened recently, or the halo effect where one positive trait overshadows everything else (Hughes et al., 2025).

Now with AI becoming more common in workplaces, companies are starting to experiment with tools that can automate parts of this process (Rsisinternational, 2024). These are not just simple software programs. They use machine learning to spot patterns in employee data, natural language processing to read and analyze written feedback, and even sentiment analysis to figure out the tone behind what people write in reviews (Management Review Quarterly, 2025). The idea is that if you let data do the heavy lifting instead of relying on one person's opinion, the whole thing becomes more fair and more consistent.

But here is the thing. Just because something is automated does not mean it is automatically fair. Algorithms learn from historical data and if that data has bias baked into it then the algorithm will too (Kelan, 2024). So while AI promises a lot in terms of making reviews faster and more objective, it also brings new problems that companies need to think carefully about. This paper looks at both sides of this story.

## **2. LITERATURE REVIEW**

Quite a few researchers have started digging into this topic over the past five years or so. One of the earlier and more well known works came from Chamorro-Premuzic et al. (2020) who looked at how technology in general is changing the science of evaluating human potential at work. Their main finding was that AI can detect performance patterns that human managers simply miss, like subtle productivity trends or collaboration patterns that are not obvious in day to day interactions. But they also warned that if the data used to train these systems reflects historical biases then the AI will just repeat those same biases in a shiny new package.

More recently Sadeghi (2024) published a study looking specifically at employee well-being in workplaces that use AI for HR tasks. The results were interesting because they were mixed. On one hand employees appreciated the faster feedback cycles and the feeling that their performance was being tracked against objective metrics. On the other hand there was a noticeable increase in anxiety especially among employees who worried about constant surveillance and the possibility that a machine could misinterpret their work.

A large survey published in Cogent Business and Management (2025) asked 306 employees what they thought about AI based evaluations. The study found that people are generally okay with AI evaluating them but only when the criteria being measured are things that obviously relate to their actual job. When the system started using things like personality traits or demographic information, people got uncomfortable fast. This tells us something important about designing these systems. Transparency matters a lot.

On the fairness side a study of gig workers found that when people feel an algorithm is treating them unfairly it directly hurts their job satisfaction and their sense of being supported by the organization (Tandfonline, 2024). This makes sense because if you do not understand why you got a certain score and there is no human you can go talk to about it, that feels pretty frustrating.

The most comprehensive review so far was published in Management Review Quarterly (2025). The researchers went through 43 peer reviewed articles published between 2016 and 2024 and identified four major themes. First AI can improve standardization and objectivity in HR processes. Second there are real risks that algorithms perpetuate systemic bias especially when there is no accountability mechanism. Third the sources of these problems are human, data related and algorithmic all at the same time. And fourth organizations need governance frameworks to handle this responsibly.

Hughes et al. (2025) added another layer to this conversation by arguing that AI in hiring and evaluation is not just a technology question but also a social inequality question that needs attention from multiple disciplines including sociology, law, and computer science. Cha (2025) from the University of New Hampshire found something particularly interesting. Employees who already feel their human supervisor is biased actually prefer being evaluated by AI. So in some cases AI is seen as the lesser evil which says a lot about the current state of traditional reviews.

## **3. METHODOLOGY**

This paper uses a secondary research approach drawing on existing academic literature and industry reports published between 2020 and 2025 (Advances in Consumer Research, 2025). The sources include peer reviewed journals from Springer, Taylor and Francis, and IEEE, as well as reports from organizations like SHRM and Gartner. The focus was specifically on studies examining AI in the context of performance evaluation rather than other HR functions like recruitment or payroll (Rsisinternational, 2024). A total of 10 key sources were identified

and analyzed to understand both the efficiency benefits and fairness concerns associated with AI driven performance reviews.

## **4. FINDINGS AND DISCUSSION**

### **4.1 EFFICIENCY GAINS**

The research consistently shows that AI makes the review process significantly faster. According to one analysis, AI integration in routine HR processes leads to efficiency gains between 57 and 80 percent (Advances in Consumer Research, 2025). That is not a small number. For a manager who used to spend an hour on each review, that could mean getting it done in 15 minutes or less. The time savings come mainly from automated data collection, where the system pulls information from project management tools, peer feedback forms, and even email activity without anyone having to manually compile anything (Rsisinternational, 2024). NLP tools can also read through hundreds of written reviews in minutes and identify common themes, which would take a human several hours to do manually.

### **4.2 BIAS REDUCTION**

One of the most talked about benefits of AI in reviews is its potential to reduce bias. Traditional reviews are full of unconscious bias. A manager might rate a quiet employee lower simply because they are less visible, even if their actual output is excellent (Chamorro-Premuzic et al., 2020). AI systems can be designed to look only at quantifiable metrics like project completion rates, quality scores, and client feedback which in theory removes a lot of the subjectivity. Studies suggest that organizations using AI assisted reviews see roughly a 33 percent drop in perceived bias among employees (Cogent Business and Management, 2025). Some tools can even flag biased language in written reviews for example if a manager uses gendered terms or vague phrases that do not actually describe performance (Management Review Quarterly, 2025).

### **4.3 FAIRNESS CONCERNS**

But here is where it gets complicated. Just because AI removes some human biases does not mean the end result is automatically fair. Kelan (2024) made a strong argument that algorithmic inclusion requires us to question who builds these systems and what assumptions they carry. If the team designing an AI evaluation tool is not diverse, the tool might have blind spots that affect certain groups of employees unfairly. Hughes et al. (2025) went further arguing that AI driven evaluation systems can actually deepen existing organizational inequalities if companies do not actively audit for bias.

The transparency issue is also a big deal. Many AI systems work like a black box where you can see the input and the output but not what happens in between (Sadeghi, 2024). This is a problem because employees want to understand why they received a particular score. The 306 employee survey found that trust drops significantly when people cannot see how their evaluation was calculated (Cogent Business and Management, 2025). Data privacy is another concern. When AI systems are scanning emails, messages, and calendar data to assess performance, employees understandably worry about surveillance and how their personal data is being used (Management Review Quarterly, 2025).

### **4.4 EMPLOYEE PERCEPTIONS**

Employee reactions to AI reviews are mixed but leaning cautiously positive. People seem to be okay with the idea as long as two conditions are met. First the metrics need to be transparent and clearly job related. Second there needs to be a human in the loop who can override or add context to the AI generated scores (Cogent Business and Management, 2025). Interestingly Cha (2025) found that employees who already experience bias from human supervisors are more receptive to AI evaluations, which suggests that context matters a lot in shaping these

perceptions. In environments where trust in management is already low, AI might actually be seen as an improvement rather than a threat.

## 5. CONCLUSION

After going through the available research it is pretty clear that AI has a real and growing role in performance management. It saves time, brings consistency, reduces some forms of human bias, and enables continuous feedback instead of just annual snapshots (Sadeghi, 2024). But the technology is not neutral and it is definitely not perfect. If companies do not actively work on making their AI systems transparent, explainable, and regularly audited for bias, they risk replacing one set of problems with another (Hughes et al., 2025). The best approach based on what the research consistently suggests is a hybrid model where AI handles the data collection, pattern recognition, and preliminary scoring, while humans make the final judgment calls and provide the personal context that algorithms simply cannot capture (Chamorro-Premuzic et al., 2020). That way organizations get the efficiency and objectivity benefits of AI without losing the human understanding and empathy that employees still value and honestly probably always will.

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