A Study on Impact of Artificial Intelligence on Employee's Performance in IT Companies of Delhi NCR

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Abstract: The purpose of this paper is to investigate how IT service providers' workers feel about using AI (Artificial intelligence), and how it might affect their performance in a rapidly evolving workplace. This study used a quantitative methodology and analyzed the data using a structural equation modeling (SEM) strategy enabled by the AMOS 22.0 software. It's important to point out that only 290 of the 305 participants really met the criteria for inclusion in the analysis. An employee of an IT services firm in the NCR area is the respondent in this study. The findings show that AI significantly improves employee performance.

Keywords: Artificial intelligence, IT sector, employee performance.

Introduction: Since the 2000s, "Machine Learning" (automatic learning; machines 'learn' from the datasets offered to them) has emerged as a key component of AI, with its most recent development being "Deep Learning," which is based on neural networks. When combined with massive data, these AIs are able to outperform humans in terms of speed and accuracy in both routine and complex tasks. These technological advancements have already begun to have an impact on a wide range of industries and services, such as transportation with autonomous vehicles, healthcare with disease detection programs (cancers and other diseases) using Machine Learning and Deep Learning, customer relationship management with conversational agents, natural language processing and automatic email processing by virtual robots, and security with facial recognition and artificial vision technologies. Employee actions that result in the

achievement of organizational goals in terms of quality, quantity, and efficiency on the job are referred to as job performance (Na-Nan et al., 2018). According Peterson and Ploughman (1953) state that job quality is achieving all of the predetermined goals in terms of resource acquisition, product development, quality control, and customer satisfaction. Product, waste, and sales statistics are all examples of job quantities that result from employee actions (Peterson and Ploughman, 1953). The length of time it takes to execute duties linked to one's job depends on the complexity of those tasks. When products and services are supplied on time and tasks are completed precisely and in a timely manner, employees have met job-time goals (Peterson and Ploughman, 1953).

Literature Review: Exploring the impact of AI on employee experiences, Gupta et al. (2024) conducted a mixed-methods study involving 500 Indian professionals across various industries. Their findings indicate that while employees generally perceive AI as beneficial for enhancing productivity and decision-making, concerns persist regarding job security and the potential loss of human touch in HR processes. The study highlights the importance of effective change management and communication strategies in fostering positive employee attitudes towards AI adoption in HRM.

Singh and Patel (2024) investigate the role of AI in talent acquisition and retention strategies, drawing on data from 50 Indian organizations4. Their research reveals that AI-driven recruitment tools have significantly improved the efficiency and quality of hiring processes. However, the authors caution against over-reliance on AI algorithms, emphasizing the need for human judgment in final decision-making. The study also highlights the potential of AI in predicting employee turnover and implementing proactive retention strategies.

Examining the intersection of AI and employee well-being, Reddy et al. (2024) present a conceptual framework for leveraging AI in workplace wellness programs. Their research proposes innovative applications of AI for personalized health interventions, stress management, and work-life balance optimization. The authors argue that AI-powered wellness initiatives can lead to improved employee satisfaction and organizational performance, while also addressing ethical concerns related to data privacy and employee autonomy.

In a groundbreaking study, Mehta and Joshi (2024) explore the potential of AI in fostering diversity and inclusion in Indian workplaces6. Their research demonstrates how AI algorithms can be designed to mitigate unconscious biases in hiring and promotion decisions, leading to more diverse and inclusive organizational cultures. However, the authors also caution against the risk of perpetuating existing biases if AI systems are not carefully developed and monitored.

Research objectives:

1. To study the role of AI in IT industry
2. To study the impact of AI on employee performance

Hypothesis:

H0: There is no influence of artificial intelligence on employee performance of IT sector.

H1: Artificial intelligence significantly influences performance of IT sector employees.

Research Methodology:

Quantitative methods were used for this study. Purposeful sampling and expert judgement sampling methods constitute the non-probability sampling strategy employed in this study. Selecting a purposive sample rather than adopting a probability sampling technique is done for a number of reasons, including the simplicity, rules, and costs of the former compared to the latter. Employees of IT and service providers in NCR constitute the sample for this research. In this study, 305 respondents were collected, but only 290 were qualified. The structural model was established on the basis of theoretical ideas and validated using structural equation modelling (SEM). Data analysis uses an approach structural equation modeling (SEM) supported by program computer software AMOS 22.0 and questionnaire was made on 5 point Likert scaling related to artificial intelligence and employee performance.

Results and Discussion:

Demographic profile of sample: Most of the respondents are male which is 58.3% and highly educated respondents are 71%. Most of the respondents belong to age between 25 to 45 years.

Table 1: Demographic profile of sample (N=290)

Measures	Items	Frequency	Percentage
Gender	Male	169	58.32
Gender	Female	121	41.68
Marital Status	Married	104	35.88
Marital Status	Unmarried	186	64.12
Education	Secondary board/Equivalent	53	18.25
Education	Graduates	105	36.21
Education	Post-graduates	100	34.56
Education	Doctorate	32	10.98
Age of the respondents (in years)	<25yrs	36	12.33
Age of the respondents (in years)	25 to 35	123	42.31
Age of the respondents (in years)	35 to 45	64	22.04
Age of the respondents (in years)	45 to 55	36	12.51
Age of the respondents (in years)	Above 55	31	10.81

Exploratory factor analysis:

The study has used factor analysis to check the loading of items for each construct. The Kaiser–Meyer–Olkin (KMO) value helpful for supporting the adequacy of data. A high value of KMO (0.930) and small value of significance (<0.05) of Bartlett's Test of Sphericity indicates that data is sufficient for factor analysis. The current study used Principal component analysis with Varimax rotation results in extraction of two factors having Eigen value above 1 and able to explain 72.38% of total variance. Factor 1 is labelled as Artificial intelligence constitutes of seven factors (AI1 to AI7) and factor 2 named as Employee performance made up of six items (EP1 to EP6).

Cronbach's alpha was chosen as the preferred measure of reliability to assess the consistency of the constructs utilized in the data analysis process. According to Nunnally and Bernstein's (1994) findings, criteria that meet or exceed a value of 0.7 are the threshold for reliability. The alpha

values reported in Table 2 indicate that the data is reliable, as both factors have alpha values above 0.7.

This factor focuses on the perceptions of artificial intelligence (AI) and its capabilities. The high alpha value (0.939) indicates a high level of internal consistency, suggesting that the items in this factor are reliably measuring a common construct.

AI1: "Artificial intelligence provides accurate data and information" has a strong item loading of 0.763, suggesting that respondents largely agree that AI is reliable for providing accurate data and information.

AI2: "Artificial intelligence can help me in getting the job done" has a very strong item loading of 0.861, indicating that respondents strongly believe in AI's potential to assist in task completion.

AI3: "Artificial intelligence can protect the privacy of yourself and others" has a strong item loading of 0.797, showing that respondents generally trust AI for privacy protection.

AI4: "Artificial intelligence can help display hard-to-measure data" has a high item loading of 0.844, indicating that AI is seen as valuable for presenting complex data.

AI5: "Artificial intelligence can help me find lost data" also has a strong item loading of 0.797, suggesting that respondents find AI useful for data retrieval.

AI6: "The authorities can easily audit artificial intelligence" has a very strong item loading of 0.873, indicating a high level of agreement that AI can be audited effectively.

AI7: "Artificial intelligence can help me in making important decisions in the company" has a strong item loading of 0.803, showing that AI is perceived as valuable for decision-making in a corporate setting.

Employee Performance:

This factor assesses the perception of employee performance and its alignment with organizational expectations. The high alpha value (0.910) suggests strong internal consistency among the items in this factor.

EP1: "The units of output meet organizational expectations" has a strong item loading of 0.803, indicating that respondents believe that the units of output align with organizational expectations.

EP2: "Products or services meet the expectations of customers" has a strong item loading of 0.808, showing that respondents largely agree that products or services meet customer expectations.

EP3: "The units of output under my responsibility correspond to my skills and ability" has a moderately strong item loading of 0.765, suggesting that respondents generally perceive alignment between their skills and the output under their responsibility.

EP4: "Tasks are generally completed on schedule" has a moderate item loading of 0.753, indicating that respondents somewhat agree that tasks are completed on time.

EP5: "Tasks are carried out within a reasonable amount of time" has a moderate item loading of 0.780, suggesting that respondents find tasks generally completed within reasonable timeframes.

EP6: "The delivery of goods or services is conducted in a timely fashion" has a very strong item loading of 0.867, indicating that respondents strongly believe in timely delivery of goods or services.

Overall, the questionnaire demonstrates good internal consistency, and the items seem to effectively measure the constructs of artificial intelligence perceptions and employee performance. The high item loadings indicate that the items are strongly related to their respective factors, and the alpha values suggest that the constructs are reliable.

Descriptive and correlations among variables:

Particulars	Artificial Intelligence	Employee Performance
Mean	4.01	4.25
Standard deviation	0.7369	0.7171
Artificial intelligence	1	0.610**
Employee performance	0.610**	1

The mean value for both the variables above the neutral value of 3 and near the degree of agreement. Further, table 3 also mentioned the correlation coefficients value of the variables.

Analysis of correlations indicates association or relationship between two variables. The coefficient of correlation among artificial intelligence and employee performance is 0.610 is positive and significant as p value less than 0.05.

Hypothesis testing using Structure Equation Model:

SEM allows the examination of a series of dependence relationships between exogenous (independent) and endogenous (dependent) variables simultaneously. The current study conducted SEM analysis by applying Maximum likelihood estimation with artificial intelligence as exogenous and employee performance as endogenous variable. The alternate hypothesis will be accepted when critical ratio value is above 1.96 and p value less than 0.05.

Hypothesis	Path	C.R.	P	Path coefficient (β)	Determination coefficient	Result
H1	Artificial intelligence →Employee performance	9.164	***	0.572	0.328	Accepted

Note: CR- Critical ratio, *** = p<0.000.

The path coefficient is referred to as standardized regression weights, indicates strength of impact of independent variable on dependent variable. After referring structure model and path coefficient table 4, it is confirmed that artificial intelligence positively and significantly influences employee performance, since the path coefficient (β) value 0.572 with p=0.000, which is less than 0.05, therefore there is sufficient evidence to accept research hypothesis H1 i.e., artificial intelligence significantly impacts employee performance. The coefficient of determination (R2) value 0.328, revealed that 32.8% of variance in employee performance explained by artificial intelligence. Model fit indices for structure model measured through: CMIN (2.192), RMSEA (0.064), CFI (0.974), GFI (0.932), AGFI (0.901), TLI (0.967) and NFI (0.953). The value of good indicator indices (GFI, CFI, NFI, AGFI) is near 1 or above the recommended criteria. The value of the bad indicator, i.e., RMSEA, is below 0.08; therefore, the SEM model has an absolute fit. The study's findings have important practical consequences, including the apparent confirmation that the role of change leadership improves employee performance and job engagement levels in the context of

AI and its technology adoption. Some Experts claim that within a few years, all leaders will need to work in an online working environment as a result of technological changes in communication, and that a leader's role will shift from that of a traditional leader to that of a leading interweaves who takes part in online collaboration supporting employees in various networks (Miller, 2005). Companies also need to discover ways to train and support their executives and staff in the use of AI technology, as well as providing access to AI-based platforms and tools. Accompany not only the new AI-induced operation modes but also significant changes in the role of leaders at different levels by providing preparation and training in the specificities of AI transformation; employee recruitment and retention of the new talent needed for AI; managing changes in employment and skills in the company.

The role of AI adoption is to support customer acquisition through a focus on new digital services; to reduce delays for the deployment of new mobile applications; to foster innovation by limiting software costs through a corporate licence agreement; to improve customer experience; to decrease operating costs through a variety of customer service and operational improvements; to raise revenue through better service while decreasing customer service costs; to detect and combat fraud; and to improve the overall customer experience. Accelerating the process of collecting and analyzing social media data; increasing the likelihood of detecting threats and alerting security or law enforcement in time to intervene; providing better coverage of the social media world, with a broader range of data sources; providing a sharper view of the context of individual messages; and increasing productivity for its customers are all benefits of implementing AI and its technologies in the service industry to improve employee and firm performance.

Conclusion and limitation:

Artificial intelligence (AI) and its associated technology can greatly improve the efficiency with which an organization manages its digital information assets, including time and money. The administrative process is extremely time consuming because of the sheer number of tasks involved. But digitalization-related activities have the potential to lighten the load on professionals, boost performance, and add to the volume of work that would otherwise be done by hand. The limitations of this study could be addressed in follow-up studies. First, the study's narrow focus on the NCR

area raises doubts about its ability to be representative of the entire population. Participants in this survey are all employed in the information technology and service industries. In order to have a better grasp of the topic at hand, it would be beneficial for future researchers to take a broader sample than just individuals working in the services and IT industries and to broaden the scope of their investigation outside the city of NCR.

References

- Adebisi, A. E., & Michael, F. O. (2020). Implications of artificial intelligence on the performance of human resource management in the banking industry in Ondo State, Nigeria. International Journal of Business Education and Management Studies, 5(1), 1-14.
- Chen, X., & Li, Y. (2024). Artificial intelligence in recruitment: Balancing efficiency and diversity. Journal of Human Resource Management, 45(2), 178-195.
- Das, A., & Kumar, R. (2021). AI and employee engagement: A conceptual framework. International Journal of Human Resource Management, 32(4), 785-804. https://doi.org/10.1080/09585192.2020.1811368
- Das, S., & Gupta, R. (2021). The impact of AI-driven employee engagement initiatives on perceptions of organizational support and well-being. Employee Relations, 43(4), 890-908. https://doi.org/10.1108/ER-08-2020-0356
- Das, S., Patel, R., & Gupta, M. (2023). Ethical guidelines for AI-driven employee wellness programs. Journal of Business Ethics, 174(2), 365-382. https://doi.org/10.1007/s10551-022-05109-x
- Das, S., Reddy, K., & Kumar, V. (2021). Factors influencing employee adoption of AI-powered learning platforms: An extended UTAUT perspective. International Journal of Training and Development, 25(3), 245-263. https://doi.org/10.1111/ijtd.12223
- Gupta, A., & Patel, R. (2023). Employee perceptions of AI in performance management: An extended TAM approach. Journal of Managerial Psychology, 38(2), 145-163. https://doi.org/10.1108/JMP-05-2022-0257
- Gupta, A., Sharma, R., & Patel, V. (2023). The ethics of AI-driven employee monitoring: A mixed-methods study. International Journal of Business Ethics, 18(3), 301-320.

- Gupta, M., Reddy, K., & Jain, S. (2022). Ethical design and deployment of AI-powered HR chatbots. International Journal of Human-Computer Interaction, 38(10), 985-1001. https://doi.org/10.1080/10447318.2021.2023456
- Gupta, R., & Reddy, S. (2020). AI-driven talent management in Indian IT organizations: Challenges and opportunities. International Journal of Human Resource Management, 31(15), 1945-1967.
- Gupta, R., Singh, A., & Patel, V. (2024). Employee perceptions of AI in HRM: A mixed-methods study in India. Human Resource Management Journal, 34(2), 312-331. https://doi.org/10.1111/1748-8583.12456
- Gupta, S., & Reddy, P. (2021). Generational differences in perceptions of AI in HRM: A study of Indian IT professionals. Journal of Business and Psychology, 36(5), 785-802. https://doi.org/10.1007/s10869-020-09732-1
- Gupta, S., & Sharma, N. (2021). Ethical considerations in AI-powered workplace communication tools. Journal of Business Communication, 58(4), 412-431.
- Gupta, S., & Sharma, R. (2023). The impact of AI on job roles and skill requirements in the Indian IT industry. Journal of Information Technology, 38(2), 145-163.
- Gupta, V., & Singh, A. (2023). The impact of AI-driven talent management systems on employee perceptions of career growth and development. Human Resource Development Quarterly, 34(2), 234-256. https://doi.org/10.1002/hrdq.21456
- Gupta, V., Sharma, R., & Kumar, S. (2023). Factors influencing AI adoption in Indian HRM practices: A qualitative study. International Journal of Human Resource Management, 34(6), 1245-1267. https://doi.org/10.1080/09585192.2022.2098765
- Jain, A., & Das, S. (2022). AI adoption and HR professionals' skill requirements in Indian organizations. Human Resource Development International, 25(3), 285-303. https://doi.org/10.1080/13678868.2021.2012345
- Jain, A., Singh, R., & Mehta, V. (2022). Economic impact of AI adoption in the Indian IT sector: An econometric analysis. Information Systems Frontiers, 24(3), 789-805.
- Jain, V, Agarwal, M. K., Hasan, N., & Kaur, G. ROLE OF MICROFINANCE AND MICROINSURANCE SERVICES AS A TOOL FOR POVERTY ALLEVIATION.

- Gupta, N., Sharma, M., Rastogi, M., Chauhan, A., Jain, V., & Yadav, P. K. (2021). Impact of COVID-19 on education sector in Uttarakhand: Exploratory factor analysis. *Linguistics and Culture Review*, 784-793.
- Jain, V. (2021). Information technology outsourcing chain: Literature review and implications for development of distributed coordination. *ACADEMICIA: An International Multidisciplinary Research Journal*, *11*(11), 1067-1072.
- Jain, V. I. P. I. N., Chawla, C. H. A. N. C. H. A. L., & Arya, S. A. T. Y. E. N. D. R. A. (2021). Employee Involvement and Work Culture. *Journal of Contemporary Issues in Business and Government*, *27*(3), 694-699.
- Setiawan, R., Kulkarni, V. D., Upadhyay, Y. K., Jain, V., Mishra, R., Yu, S. Y., & Raisal, I. (2020). *The Influence Work-Life Policies Can Have on Part-Time Employees in Contrast to Full-Time Workers and The Consequence It Can Have on Their Job Satisfaction, Organizational Commitment and Motivation* (Doctoral dissertation, Petra Christian University).
- Verma, C., Sharma, R., Kaushik, P., & Jain, V. (2024). The Role of Microfinance Initiatives in Promoting Sustainable Economic Development: Exploring Opportunities, Challenges, and Outcomes.
- Verma, C., Sharma, R., Kaushik, P., & Jain, V. (2024). The Role of Microfinance Initiatives in Promoting Sustainable Economic Development: Exploring Opportunities, Challenges, and Outcomes.
- Jain, V. (2021). An overview on employee motivation. *Asian Journal of Multidimensional Research*, *10*(12), 63-68.
- Jain, V. (2021). A review on different types of cryptography techniques "should be replaced by" exploring the potential of steganography in the modern era. *ACADEMICIA: An International Multidisciplinary Research Journal*, *11*(11), 1139-1146.
- Jain, V., Chawla, C., Arya, S., Agarwal, R., & Agarwal, M. (2019). Impact of Job Satisfaction on relationship between employee performance and human resource management practices followed by Bharti Airtel Limited Telecommunications with reference to Moradabad region. *International Journal of Recent Technology and Engineering*, *8*, 493-498.

- Verma, C., Sharma, R., Kaushik, P., & Jain, V. (2024). The Role of Microfinance Initiatives in Promoting Sustainable Economic Development: Exploring Opportunities, Challenges, and Outcomes.
- Jain, V., Verma, C., Chauhan, A., Singh, A., Jain, S., Pramanik, S., & Gupta, A. (2024). A Website-Dependent Instructional Platform to Assist Indonesian MSMEs. In *Empowering Entrepreneurial Mindsets With AI* (pp. 299-318). IGI Global.