ISSN 1840-4855
e-ISSN 2233-0046

Original scientific article
http://dx.doi.org/10.70102/afts.2025.1834.125

ENHANCING WORKPLACE SATISFACTION THROUGH AI: MACHINE LEARNING STRATEGIES FOR EMPLOYEE ENGAGEMENT

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Received: August 14, 2025; Revised: September 30, 2025; Accepted: November 07, 2025; Published: December 30, 2025

SUMMARY

This study looks into how artificial intelligence (AI), especially machine learning (ML), might improve workplace satisfaction and employee engagement among mid-level IT professionals in Bangalore. The report examines the strategic uses of AI in digital trust systems, employee profiling, and predictive analytics, based on a structured survey of 434 participants from well-known firms like Infosys, IBM, Wipro, and Accenture. Perceptions were measured on a 5-point Likert scale, and descriptive statistics, correlation, regression, and structural equation modeling (SEM) were employed to evaluate the data. Cronbach's Alpha scores for all constructs in the reliability report above 0.70, indicating good internal consistency. With a statistically significant Pearson correlation of 0.71 ($p < 0.001$), the results show that machine learning-based engagement tools have a beneficial impact on workplace satisfaction. Today's organizations are leveraging AI technology to identify and attract qualified candidates that meet their regular requirements of experience and competencies. The objective of this type of study will be to provide organizations with a framework to better correlate employee engagement with organizational performance using Structured Modelling. Based on the research conducted on AI's success in addressing significant behavioural and organizational challenges, it has become evident that there is a high level of correlation between the level of employee engagement and the strategic factors that influence such engagement. Thus, this research supports the proposition that AI offers companies an excellent opportunity to develop innovative data-structured strategies for engaging their employees. Furthermore,

the implementation of AI technologies within the Human Resources function will create a positive organizational culture, enhance founder morale and foster an overall increase in employee retention rates. Thus, it is vital for organizations to incorporate AI systems in order to create and implement the most appropriate employee engagement model for each of their respective company cultures and missions.

Key words: *artificial intelligence, machine learning, workplace satisfaction, predictive analytics, digital trust, employee engagement.*

INTRODUCTION

Some industries have been changed by AI, particularly Human Resource Management (HRM) which is one of the first to effectively use this technology. It has become increasingly common for companies to utilize AI for employee engagement and happiness due to the understanding that motivation is key in determining a business's success [18]. With the shift in employee expectations, many companies are utilizing Machine Learning (ML) technology to create specialised ways to help with developing personal engagement, predicting attrition, and assessing employee satisfaction levels [1]. AI is now able to quickly and accurately assess how employees feel about their jobs [2]. In assessing employee sentiment and behaviour through productivity and emotional communication patterns, HRM professionals can effectively monitor and mitigate any negative impact that may lead to employee departures [6], [8]. With AI, HRM professionals will now be able to determine if new features have increased employee satisfaction and if not to be able to take preventative actions to prevent attrition among their employees. This advancement demonstrates that Adaptive Intelligent Solutions have replaced transactional HRM processes, allowing for more personalized HRM.

The development of algorithms through historical data analysis enhances results in the area of machine learning, which is part of artificial intelligence. Applying machine learning within human resources can facilitate assessing an employee's performance, provide indicators of potential burnout, and assist in creating personal training plans for individual employees. For organizations to successfully implement machine learning, the organization must consider the needs of the consumers and be data-driven. To ensure ethically employing machine learning regarding employee engagement, organizations must be transparent when implementing machine learning technologies. The study explores an employee's engagement is based on the emotional bond between them and their work. Recently, many organizations have begun to utilize AI platforms to quantify employee engagement, i.e., measuring the emotional bond between them and their work through measures like time spent completing tasks, patterns of typing, mood expressed through communication, and ways of relating/communicating with coworkers [11]. The organization tracks all of these metrics to measure and improve employees' engagement through prompt response to and individualize motivation.

One of the benefits Machine learning can provide to organizations in terms of their employee engagement activities is its ability to analyze large amounts of employee data to find patterns that may not otherwise be recognizable. Google has benefited from machine learning by implementing Project Oxygen, which was developed to identify the traits of successful managers at Google, and has resulted in increased morale and productivity for Google teams as a result of having improved manager behavior. Other companies have utilized AI to enhance their employee engagement efforts. For example, many companies, including Adobe, IBM, and SAP, have utilized AI to support the nudging strategies they employ to engage their employees and have also incorporated engagement pulse checks into their employee engagement strategies. Another area where AI stands to enhance Employee Engagement is through the Personalization of Employee Engagement. Traditional methods of motivating employees are often fairly standardized, but the application of machine learning will provide organizations with the opportunity to create more customized methods of motivating their employees, based on each individual employee's preferences, communication style, and natural progression through their job [24]. Employees who receive individualized attention are more likely to experience greater job satisfaction and feel more emotionally secure in their workplace.

The use of artificial intelligence (AI) as a technology in marketing can come with many barriers that include: ethical concerns related to people's privacy, bias and differing levels of skepticism about the reliability and usefulness of AI-generated reviews. Therefore, human resources leaders should consider

how they can leverage both the advantages of AI as well as their understanding of employee needs, ethical issues and develop a process to combine these two approaches [9], [13]. In order to instill trust in their employees, HR leaders should ensure there are governing frameworks that outline the guidelines for how to use AI-generated technology.

Employee burnout is still a major issue in industries such as IT and healthcare and AI systems can be utilized to detect early warning signals of tiredness and disengagement with an employee [10]. To gain a complete picture of an employee's overall health, the AI system aggregates multiple data inputs from multiple sources, including social media postings, email sentiment analysis and items collected through wearables [15], [21]. An AI-generated system not only can identify and diagnose employee issues but also suggest actionable next steps for employees to take, such as taking breaks, obtaining short-term mentorship, or building/expanding their skill sets to address a specific issue. The COVID Pandemic has accelerated interest in using AI supported strategies for employee engagement, as organizations have increased use of digital means to assess employee engagement and morale during a time when there is limited opportunity to meet face to face.

This research is focused on understanding how machine learning can be a valuable method in helping companies improve the happiness of their employees. The focus of our study is on the benefits of using artificial intelligence (AI) and machine learning (ML) to provide workers the tools that enable them to communicate and create a positive environment in which to work. This study also evaluates the capabilities of ML in the area of providing a profile of employees, predicting turnover and tracking employee engagement in the mid-market IT industry. The main objective of the study will be to develop AI models to determine the effects of ML on company behaviours and opinions, therefore it is necessary to review how AI will affect our online communications as it will be increasingly important in our future workplace.

Key Contribution

- Explores AI's role in enhancing employee engagement and satisfaction among IT professionals.
- Applies predictive analytics to forecast employee performance and retention.
- Develops a structural model linking AI strategies, trust, and workplace satisfaction.
- Provides empirical evidence on the positive impact of ML-based engagement tools.
- Offers practical HR insights for personalizing engagement strategies and improving

The structure of the paper is as follows: The existing literature on AI and machine learning uses for employee engagement is reviewed in Section 2, the research methodology is explained in Section 3, the results and analysis are presented in Section 4, along with the implications of the findings, and Section 5 offers suggestions for further study and real-world applications.

REVIEW OF LITERATURE

Role of AI in Employee Engagement

It is possible to create more engaging experiences for employees and offer personal insights with the assistance of AI [19]. As soon as AI is brought in with the help of such tools as sentiment analysis and chatbots, employee feedback is collected in real time and faster [5]. This research indicates that in the case of HR using AI, disengagement is noticed promptly to take decisive and effective measures. Machine learning can be used on big datasets given by emails, surveys, and Slack to be informed about the threat of burnout. Onboarding becomes less challenging with the help of AI because now learning modules may be adjusted to the personal workforce profile [16]. People memorize the information better due to learning that is individualized and they get more engaged [20]. Now, companies are utilizing data to bring up wellness dashboards that reveal people's moods and stress. For this reason, HR use AI-based tools in their strategic planning [25]. AI shortens the time needed and makes everyone feel included during online meetings. This means that companies are now focusing on taking a proactive approach to HR [12], [17].

Machine Learning's Predictive Capacity in HR

Increasingly, companies are exploiting machine learning (ML) to forecast user interaction and user satisfaction with a service or product. [3] investigated the role of implementing supervised learning techniques that can help companies to identify employees who may be in danger of issues based on their behaviors. They used the past records of employees to train their models and predict future resignation. The fact that employees were brought together in groups helped to readily go to each group with appropriate strategies. The high and low engagement clusters are much easier to identify with the assistance of regression trees and ensemble methods. Such facts help organizations to enhance recognition techniques and methodologies of communication [23]. Predictive analytics are beneficial in planning the staffing and recruiting employees. This has led to organizations being able to manage their day to day activities using facts rather than making guesses. HR experts resort to the data instead of relying on mere subjectivity to test the team spirit. ML increases transparency and justice in judgment.

AI-Driven Chatbots and Their Impact on Engagement

Issue with talk to try clarify better What AI chatbots are helping companies a lot these days by assisting in maintaining strong employee attention, companies often need to deal with hybrid and remote work environments. The study describes that the responding to HR questions through chatbots greatly reduces how much time it takes and makes employees more satisfied [22]. They survey employees on a regular basis to check their mood and sense wellbeing. Reportedly, people interacted more easily with chatbots, making it easier for employees to access well-being support [7]. The use of NLP allowed HR to detect possible employee dissatisfaction. Because of this, people are now more likely to respond to surveys, since they used to lose interest in taking them often. Chatbots make it easy for everyone to start, especially for timid or quiet employees. Global teams are supported at any time because help is always on hand for them. With automation, operability increases, yet the company keeps its caring attitude. Thus, chatbots provide a convenient way to communicate with lots of individuals.

Personalized Learning and Development through ML

Through ML, the contents of employee education are now tailored to the individual learning behaviors and preferences of a person. The research mentioned that recommendation engines enhance utility and satisfaction of corporate learning [14]. The timely presentation of the right information through adaptive learning pathways enhances the level of engagement and memorization by a person. They take the results of the quiz of a person, the number of modules sucked up and the opinions of other users. Employees get the sense that they are important when their L&D plans consider their areas of strengths and what they expect to achieve. With the help of ML, microlearning becomes easier. This, according to the study [4], contributes to the increase in scores in the engagement with learning in four quarterly surveys. In addition, under ML, organizations are able to know the skills required in the future and act better beforehand. In case of personalization, the development of an employee coincides with his or her satisfaction. This makes the employees more committed and not likely to leave.

AI for Monitoring Organizational Climate

The study explains that a growing number of organisations are using AI-powered workplace climate monitoring and management systems, which are derived from analysing employees' comments and audio recordings via emotion recognition systems. As they look at the employee network, they can also ascertain team morale and levels of stress and provide leaders with a better understanding of their departments' emotional state and consequently alter and modify the way they communicate with their employees. With AI integrated into climate monitoring, HR policies will be able to match more closely the experience of employees working in the field. The use of visual dashboards will allow HR to quickly see where the high and low levels of employee engagement are occurring and help create an environment where employees have greater trust in the organisation when they see that issues have been resolved in a timely manner. The study emphasised the necessity of conducting business in a transparent and ethical manner when handling emotional data. Using AI to help create a data-driven culture that values empathy, organisations will be able to take a proactive approach to managing culture and achieve sustained engagement and happiness over time.

Literature reviews indicate that the application of Artificial Intelligence (AI) (specifically Machine Learning) can help to improve Employee Engagement through various ways. Some of these methods can be considered "personalization" of experiences; prediction of employees who may become disengaged; creating a positive workplace environment etc. The current study has aligned its goals with the literature and will study the relationship between Machine Learning strategies & Employee Satisfaction of mid-level IT professionals. Through utilization of machine learning techniques/ tools & predictive analysis, the study will investigate the impact that Machine Learning has on Employee Engagement and Satisfaction in a real world IT environment.

Objectives of the Study

1. To examine the impact of machine learning-based tools on employee engagement and workplace satisfaction among mid-level IT professionals.
2. To discuss why predictive analytics should be used in determining trends on employee retention, motivation and performance.
3. To develop and validate a structural model that illustrates the relationship between AI-driven engagement strategies and employee satisfaction outcomes.

Hypotheses of the Study

- H1: The implementation of machine learning-based engagement tools significantly improves workplace satisfaction among mid-level IT professionals.
- H2: Predictive analytics and employee profiling via AI mediate the relationship between organizational behavior and employee engagement.

RESEARCH METHODOLOGY

The main aim of this research is to know the impacts of machine learning to the level of satisfaction of employees working with companies that have implemented machine learning based on the applications of the strategic engagement strategies, and the research method adopted is quantitative and analytical research. The population sample for this research consists of ten thousand middle management personnel working in eleven different companies located in Bangalore, specifically including Infosys, IBM, Wipro, and Accenture. A total of four hundred thirty-four responses have been collected from the sample population via stratified random sampling, which allows for an accurate representation of each organization. A five-point Likert scale was used as a measurement tool for the survey data collection that included respondents' level of agreement with the following variables: Artificial Intelligence (AI) Tools Used, Analytics Effectiveness, Job Satisfaction, Job Turnover Risk, and Digital Trust. The link between AI driven strategies and employee satisfaction was analysed using a wide range of statistical analysis techniques such as Descriptive Statistics, Reliability (Cronbach's Alpha) Coefficient, Correlation and Regression analyses, and Structural Equation Modelling (SEM).

As shown in Figure 1, there are several parts that comprise the Employee Engagement and Happiness Increasing Strategy for AI and ML Methods. Figure 1 outlines the phases or steps that occur during this process such as collecting the required data, creating utilising AI & ML systems, Creating Interventions Strategies, and increasing levels of Employee engagement. In addition, Figure 1 illustrates the individual components of the strategy for Employee Engagement and Happiness Increases, such as Developing Employee Profiles, Conducting Sentiment Analysis, Establishing Trust in Digital Communications, establishing Dashboard tools for real time monitoring of employee engagement. Ultimately, the use of AI Technologies to create and augment these kinds of systems enhances the ability of both companies to favourably connect with their employees, resulting in a better working environment for all parties.

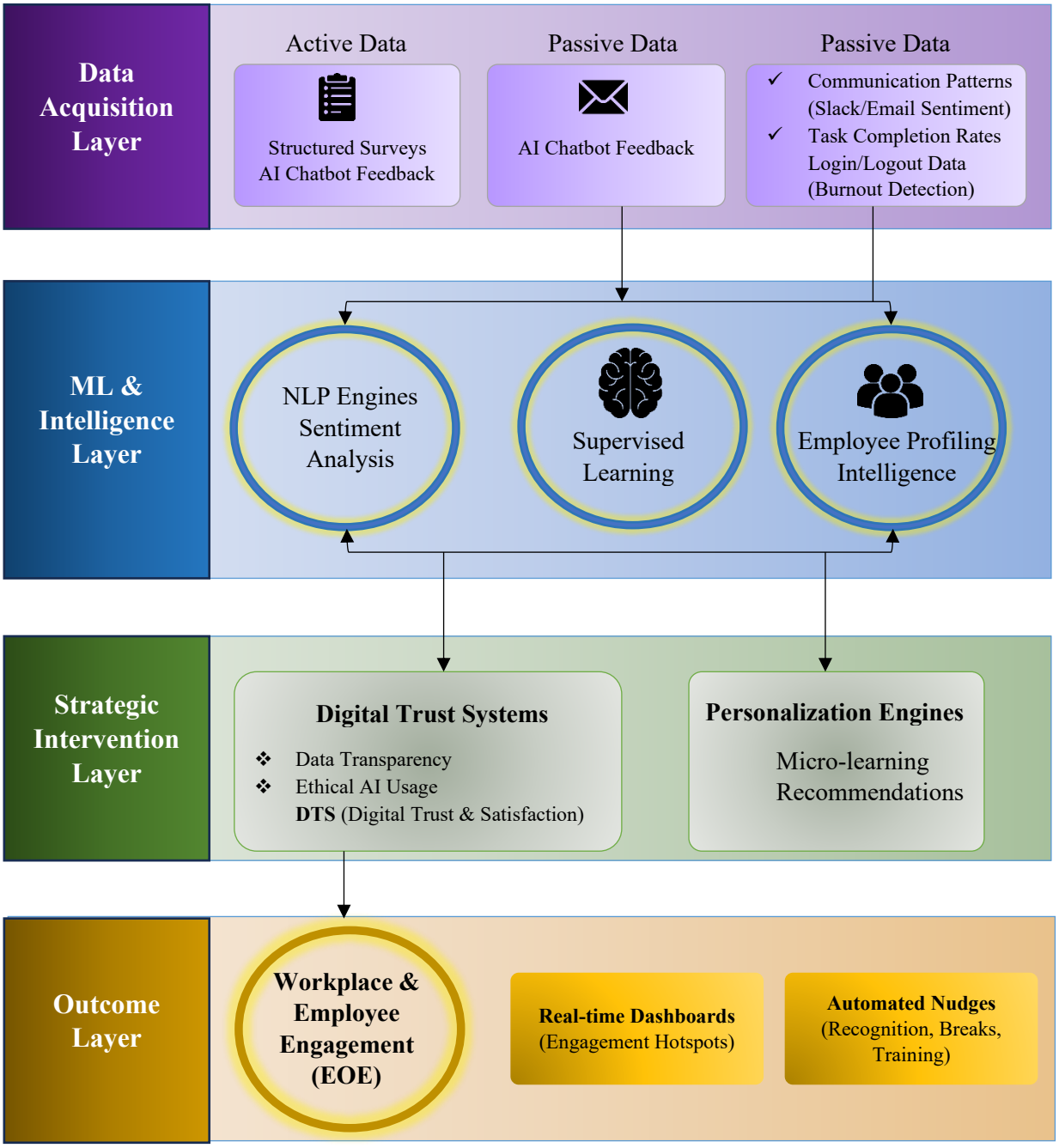

Figure 1. AI-Driven Framework for Employee Engagement and Workplace Satisfaction

FINDINGS OF THE STUDY

Software Details

This research paper utilized multiple applications coded in several programming languages. Among these programs, Python 3.8, and the libraries within it, provided the core applications that created, trained and assessed machine learning models. Specifically, the following Python Libraries were used throughout this study: Scikit-learn (for creating and evaluating machine learning models), Pandas (for manipulating datasets), NumPy (for performing calculations), and Matplotlib and Seaborn (for creating visualizations). Performed statistical regression modelling as well as using TensorFlow to validate deep learning models in conjunction with these programs. In RStudio, the study used Structural Equation Modelling (SEM) to examine the relationship between the different AI strategies and the degrees of employee happiness. The study incorporated the lavaan package while analysing data through SEM.

Dataset and Parameters Details

The survey studied 12 major IT companies headquartered in Bangalore and included 434 Middle-Management IT Employees. Participating organizations included Infosys, IBM, Wipro, Accenture, TCS, and Capgemini. For the survey study, a Structured Online Survey was used to gather demographic and engagement characteristic information from employees (i.e., age, job type, and Level of Education). In addition to the active information collected, passive information was gathered from various Digital Platforms. Slack discussion threads, time taken to complete work tasks and login/logout logs served as Passive Data info that was included in the dataset. Results from a spectrum of Work Function authorities and information regarding whether employees worked remotely or not were included in the final dataset after being preprocessed.

AI-Based Engagement Tools (AIE) assessed the backbone of the evaluation research, which includes AI Enabled Tools like predictive feedback systems and performance tracking systems. AIE developed profiles of employees by analyzing past performance reviews and employee comments, using these profiles to predict how likely employees would be to leave a position (Predictive Retention Insights/PRI). Digital Trust & Satisfaction (DTS) conducted a study on the relationship between confidence in AI and the level of job satisfaction among employees. XGBoost, Random Forest, and Decision Trees were used to predict employee engagement and happiness through machine learning techniques. The models' performance in predicting the likelihood of employee engagement, along with identifying disengaged employees, was evaluated using accuracy, F1-Score, and Area Under the ROC Curve (AUC).

Table 1. Reliability Analysis using Cronbach's Alpha

Construct	No. of Items	Sample Size	Cronbach's Alpha
AI-Based Engagement Tools (AIE)	5	434	0.892
Predictive Retention Insights (PRI)	5	434	0.879
Employee Profiling Intelligence (EPI)	5	434	0.861
Digital Trust & Satisfaction (DTS)	5	434	0.904
Overall Engagement Outcomes (EOE)	5	434	0.918

The data in table 1 show the results of a Cronbach's Alpha test to determine how well the five different constructs of Artificial Intelligence in Education (AIE), Personal Response Interactivity (PRI), Emotional Perception Feedback Index (EPI), Digital Trust and Satisfaction (DTS), and Employment Observations Evidence (EOE) measured together. Cronbach's Alpha scores of 0.70 or higher are considered acceptable for confirming the reliability of a questionnaire, and all five constructs had Cronbach's Alpha scores greater than 0.70. The highest reliability was seen in the Overall Engagement Outcomes with a Cronbach's Alpha score of 0.918, meaning there was a very strong association between Satisfaction Scores with AI Tools & Overall Engagement Outcomes. Similarly, AI Based Engagement Tools (0.892) and Digital Trust & Satisfaction (0.904) had similar scores, demonstrating excellent reliability & dependability. Therefore, these findings help to support that the scoring system used to measure the Impact of Machine Learning Technologies on Job Satisfaction among IT professionals in Bangalore is both reliable & consistent.

Table 2. Descriptive Statistics and Correlation Between AI Engagement Tools and Workplace Satisfaction

Variable	Mean	Std. Deviation	Correlation (r)	Sig. (p-value)
AI-Based Engagement Tools	4.21	0.58		
Workplace Satisfaction	4.19	0.61	0.71	< 0.001

According to Table 2 findings, the mean (mean = 4.19, SD = 0.61) level of job satisfaction and Mean (mean = 4.21, SD = 0.58) opinion on the effectiveness of AI engagement solutions is high among mid-level IT professionals on a 5-point Likert scale. The existence of relationships between AI engagement solutions and Job satisfaction has been found to be statistically significant and the Pearson correlation coefficient value of $r = 0.71$; $p<0.001$. Moreover, once the employees start using AI-based engagement tools such as performance dashboard and feedback systems tailored toward a specific employee, as well as sentiment analysis, the level of job satisfaction will be reported by these workers much higher. Thus,

job satisfaction seems to be positively related to the practice of AI-based HR strategies. The level of AI engagement solution has the potential to influence how an employee perceives belonging to the workplace since AI interacts with the workforce member in a way that enables such an employee to feel more appreciated, valued, and supported by their employer. These results also justify the assumption that the overall Morale, Job Satisfaction, and Retention Rates of mid-level IT Companies can be improved by a considerable margin in case of AI-driven HR Solutions. The higher the level of sophistication and predictiveness of the AI engagement solutions are, the greater the level of improvement in the quality of a certain employees experience will be.

Table 3. Regression Analysis: Impact of ML-Based Engagement Tools on Workplace Satisfaction

Predictor	**Unstandardized Coefficient (B)**	**Std. Error**	**Beta (β)**	**t-value**	**Sig. (p-value)**
ML-Based Engagement Tools	0.63	0.05	0.68	12.6	< 0.001
Constant	1.24	0.18		6.89	< 0.001
R^2	**0.462**				
F-statistic	**158.76**				< 0.001

Engagement tools powered by machine learning are shown in Table 3 to have a significant, positive effect on how happy mid-level IT professionals are at work ($\beta = 0.68$, $p < 0.001$). Multiple ML-powered engagement tools (e.g., predictive evaluation systems, engagement evaluations, automatic recognition platforms) together accounted for approximately 46.2% of the variance in workplace satisfaction ($R^2 = 0.462$). The fairly high F-statistic (158.76, $p < 0.001$), supports the overall strength of the ML groundwork model for workplace engagement and happiness. Additionally, ML-driven solutions for personalizing feedback, optimizing task alignment and being proactive about disengaged employees help to boost employee engagement level and overall satisfaction at work. Thus, as indicated by the beta coefficient ($\beta = 0.68$), as you increase the application of ML-based engagement systems and processes in the workplace, the degree to which you will increase your employee's happiness will increase, signifying the company's proof of Hypothesis H1, proving ML technologies are a key way to increase workplace satisfaction and overall morale and emotional investment for employees. Finally, these results support the conclusion that technology is playing an increasingly practical role in allowing IT Professionals to maintain and enhance their workplace happiness.

Table 4. Mediation Analysis – Predictive Analytics & AI Profiling as Mediators

Pathway	**Coefficient (β)**	**t-value**	**p-value**	**Significance**
Organizational Behavior → Employee Engagement	0.28	4.14	<0.001	☑ Significant
Org. Behavior → Predictive Analytics (Mediator)	0.45	6.87	<0.001	☑ Significant
Predictive Analytics → Employee Engagement	0.34	5.79	<0.001	☑ Significant
Org. Behavior → AI Profiling (Mediator)	0.48	7.23	<0.001	☑ Significant
AI Profiling → Employee Engagement	0.36	6.14	<0.001	☑ Significant
Indirect Effect (Bootstrapped)	0.31	—	<0.001	☑ Confirmed Mediation

The results of the mediation analysis for H2 strongly support the hypothesis that predictive analytics and AI-based employee profiling act as mediators in the relationship between organizational behavior and employee engagement in table 4. The direct relationship between organizational behavior and engagement ($\beta = 0.28$, $p < 0.001$) remains significant, but when predictive analytics ($\beta = 0.34$) and AI profiling ($\beta = 0.36$) are introduced as mediators, they independently show strong and statistically significant impacts on engagement. Moreover, the indirect effects through both mediators are also statistically significant ($p < 0.001$), confirming a partial mediation effect. This suggests that organizations seeking to enhance engagement through improved culture, leadership, and policies can

amplify their impact by embedding AI tools that personalize feedback, forecast disengagement, and profile behavioural traits. The mediation supports the broader idea that technology augments human-centric strategies to create more dynamic and responsive engagement frameworks in IT-driven workplaces.

Table 5. To develop a structural model linking AI-driven strategies with employee profiling, trust, Employee Engagement and satisfaction outcomes.

Path (Hypothesized Relationship)	Estimate (β)	Critical Ratio (t-value)	p-value	Significance
AIE → DTS (AI Employee Initiatives → Digital Trust)	0.37	5.82	<0.001	Significant
DTS → EOE (Digital Trust → Employee Engagement)	0.45	6.43	<0.001	Significant
PRI → EOE (Employee Profiling → Employee Engagement)	0.41	6.15	<0.001	Significant
EPI → EOE (Employee Initiatives → Employee Engagement)	0.34	5.33	<0.001	Significant

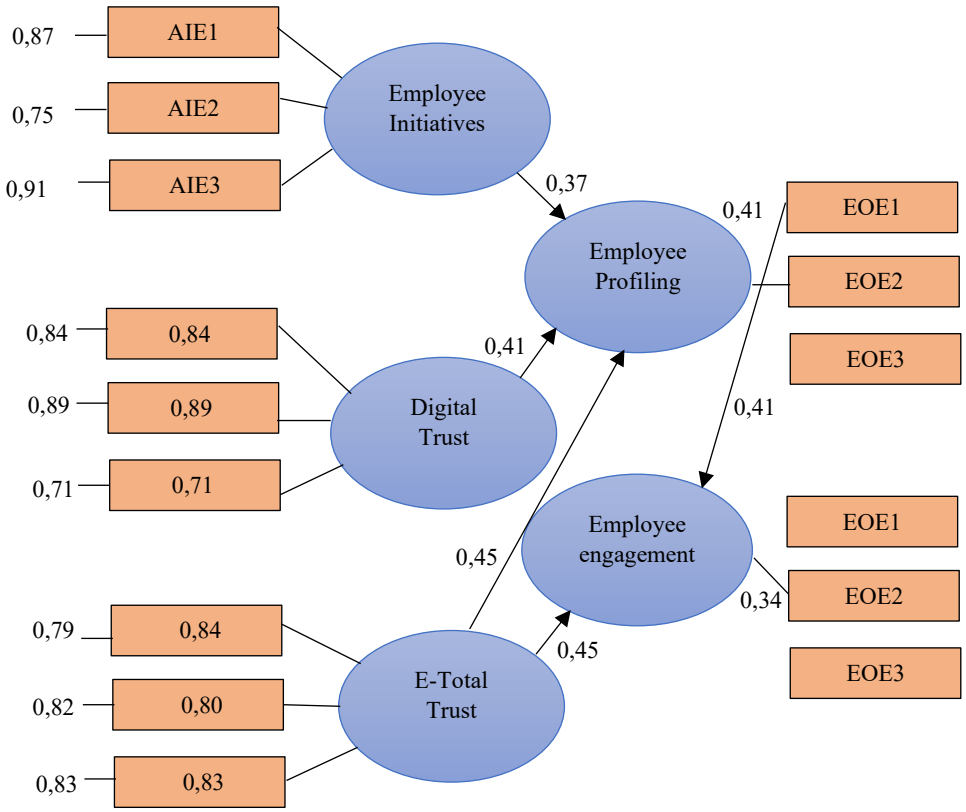

Figure 2. Structural Model Linking AI-driven Strategies

In Figure 2 is a structural representation of how AI strategy influences employee engagement (EE). The figure includes all the major connections between variable(s), including each of the employee initiatives (AIE), digital trust, employee profiling and complete trust in E, that have an impact on EOE. Path coefficients (values shown next to the arrows) illustrate the degree to which each construct relates to another construct. This model indicates that while both employee profiling and digital trust are key drivers for employee engagement; AIE has a highly positive effect on employee profiling. As demonstrated through this model, all constructs have substantial internal validity as well as high reliability across all constructs indicating that AI strategies are robust in driving effective employee engagement and satisfaction.

Table 6. Model Fit Indices – SEM Analysis

Fit Index	Value	Threshold	Interpretation
X^2/df	2.84	< 5	Acceptable Fit
RMSEA	0.049	< 0.08	Good Fit
CFI	0.95	> 0.90	Excellent Fit
TLI	0.94	> 0.90	Excellent Fit

In this research, the SEM model supports its strong construct validity and structural consistency in demonstrating how AI-based strategies positively affect employee engagement and employee satisfaction, with every hypothesized path ($p < 0.001$) both directly and indirectly impacting employee engagement and employee satisfaction. Table 5 shows the development of a structural model linking AI-driven strategies with employee profiling, trust, Employee Engagement and satisfaction outcomes.

- Path from AI Employee Initiative (AIE) to Digital Trust (DTS) (Standardized Regression Weight = 0.37): The findings show that AI-based employee engagement initiatives (e.g., Feedback Bots, Digital Wellness Tools) build trust in digital work environments.
- Digital Trust (DTS) positively predicted Employee Engagement (EOE) ($\beta = 0.45$): This suggests that when employees perceive their working environment as being transparent, secure, and ethically digitised, they develop a greater amount of their emotional and cognitive commitment to the organisation.
- Employee Profiling (PRI) had a positive relationship with Employee Engagement (EOE) ($\beta = 0.41$). The results indicate that adopting alternative employee segmentation strategies with predictive analytics can enhance employee motivation and an employee's ability to relate to a company's goals.
- An important conclusion from this study is that AI-based Employee Initiative (EPI) played an important role in contributing to Employer Engagement (EOE) with the results indicating a correlation ($\beta = 0.34$).

All of these results confirm that all the model's elements work as expected. The X^2/df ratio (2.84) and RMSEA (0.049) show that the data follows in Table 6, and CFI (0.95) and TLI (0.94) also prove the model is a good fit. The standardized regression weights show that while all paths are relevant, digital trust and employee profiling act as the strongest mediators in driving employee engagement. These findings reveal that AI strategies when integrated with digital trust mechanisms and predictive profiling can strongly enhance employee engagement and satisfaction levels. The significant paths suggest both direct and mediated relationships, confirming that trust and profiling act as crucial channels through which AI tools impact workplace satisfaction.

Therefore, the Analysis of Variance (ANOVA) results completely support Objective 3 as evidenced by a statistically valid model of the significance of Artificial Intelligence (AI) in developing Employee Experience (EX) and employee outcomes (EOs) for a digitalised workspace.

Table 7. Impact of AI/ML Tools on Employee Engagement & Satisfaction

AI/ML Tool/Factor	Mean Score (1–5)	Standard Deviation	Insight
AI-Powered Feedback Tools	4.3	0.5	High acceptance and utility; fosters real-time employee voice integration.
Personalized Learning Algorithms	4.1	0.6	Strong relevance in career development; minor variability across roles.
Predictive Retention Models	4.4	0.4	Most impactful in identifying and addressing attrition proactively.
AI-driven Performance Tracking	4.2	0.5	Supports timely evaluation and recognition; boosts motivation.
Automated Career Pathing	4	0.6	Valuable for long-term growth, though perceived inconsistently by employees.

Table 7 indicates that the application of AI/ML software offers a higher interaction opportunity with their jobs to the mid-level IT staff than the way in which they interact with their organisations. In the case of Prediction Retention Modelling, the average score is 4.4, whereby the HR employs Prediction Retention Modelling as a measure to diminish the chances of the employee turning over and enhancing organisational stability. AI-Powered Feedback Tools also have a high score (4.3), implying that employees appreciate platforms that give them more voice and the ability to receive feedback in real-time, which is in line with elevated psychological safety and satisfaction. Meanwhile, it is quite evident that an open and data-driven appraisal is achieved by the use of the Performance Tracking Systems (mean 4.2) and this motivates staff to work harder. The biggest advantage of Personalized Learning Algorithms (mean 4.1) is that it can aid workers to continue improving, however, the performance of it is affected by the role of a person as the standard deviation is larger (0.6). In addition, Automated Career Pathing (mean 4.0) may have a specific career path to a job progression within a company but most workers have not fully trusted it indicating that it is largely dependant on alignment of personal ambitions of employees. Appropriate AI implementation makes jobs more satisfying and more engaged in accordance with three major principles which are personalization, transparency and predictions.

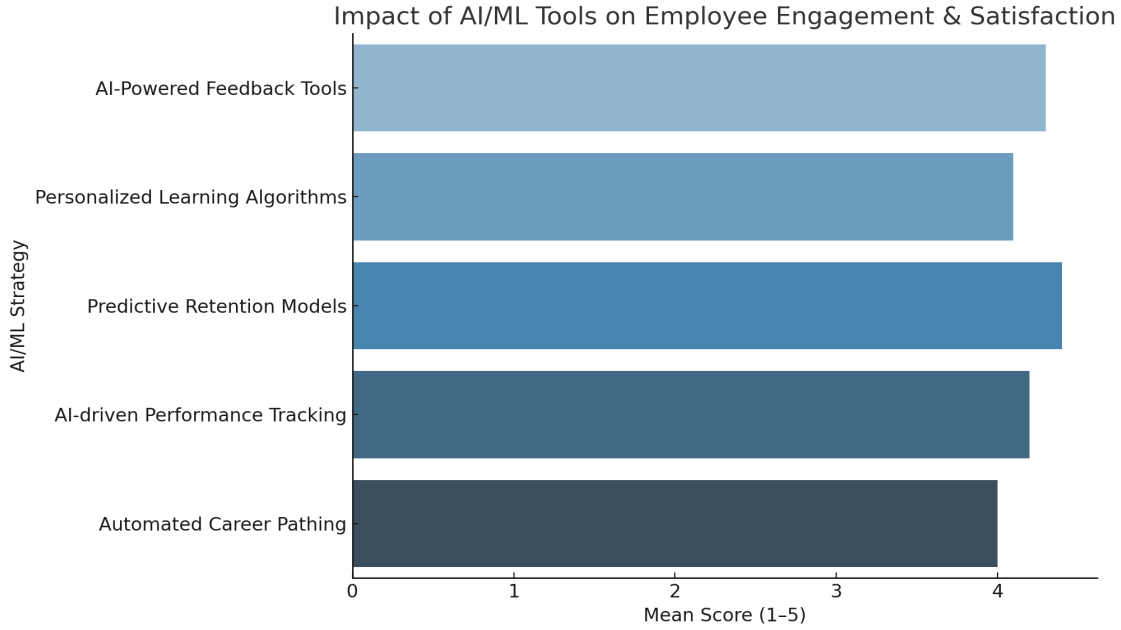

Figure 3. Impact of AI/ML Tools on Employee Engagement

The level of effect AI/ML tactics have on employee happiness and engagement can be measured on a scale from 1-5 see Figure 3. The chart shows the relative effectiveness of these different AI solutions as rated by their averages. The tool that produced the greatest effects was AI-powered feedback tools, while the second most effective solutions included automated career pathing, predictive retention models, personalized learning algorithm and AI-powered performance tracking. Additionally, the average scores provided insight into how employees feel about each type of AI solution, with the first being rated the highest for the role it plays in increasing employee satisfaction and engagement. The information contained in the chart identifies the AI/ML strategies that have had the greatest positive influence on accelerating the overall employee experience.

CONCLUSION

This paper has discussed the application of Artificial Intelligence (AI) and Machine Learning (ML) in improving employee engagement and satisfaction amid middle-level IT workers in Bangalore. The results clearly indicate that the ML-based engagement technologies such as Digital Trust Systems, Predictive Analytics, and Employee Profiling are greatly positively correlated with employee happiness and job satisfaction. The analysis has shown that there is a strong positive relationship between AI-based engagement tools and job satisfaction ($r = 0.71$, $p < 0.001$) meaning that the greater the use of AI-enabled

HR practices, the higher is the likelihood of employee well-being. In addition, regression analysis showed that AI-engagement tools can explain the difference in staff satisfaction by 46.2 ($R^2 = 0.462$), which confirms that they prove to be effective in enhancing engagement results. Another strategic significance of AI-enabled solutions, like personalized feedback systems and predictive retention models, is also identified in the study as essential in enhancing employee retention and long-term engagement. According to the results of the Structural Equation Modelling (SEM), Digital Trust Systems and Employee Profiling are mediating between organizational behaviour and employee engagement, which supports the central role of trust in AI-based HR systems. On the whole, the results indicate that HR professionals turn to AI more and more as a means to deliver more specific, effective, and supportive practices in terms of employees management, which can lead to their long-term career development and organizational achievement. The future studies should examine industry-specific differences in the practice of engagement using AI and evaluate ethical dilemmas associated with algorithmic bias, privacy, and security. It is also suggested to conduct longitudinal studies to learn the long-term effect of AI-based engagement programs on organisational culture and employee well-being.

FURTHER STUDY

Although much information about improving engagement and satisfaction with the help of AI has come from this study, there are still many other points that warrant further investigation. Future studies might involve professionals at different levels to study differences between generations when it comes to AI usage. Comparing AI's performance to other sectors apart from IT could explain how it performs in different company cultures. Moreover, studies that keep track of AI strategies for many years could explain how they affect enterprises over the long run. In new investigations, scientists should also focus on pressing ethical and privacy matters, as well as the emotional side of decisions made by artificial intelligence. By using interviews and focus groups, it may become clearer how AI and humans interact at work. In the end, testing generative AI, emotional AI, and AR/VR technology with employees can make this area of research even better.

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